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THE MONTANA BICYCLIST'S GUIDE

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Foreword

The popularity and growth of bicycle driving in the State of Montana has risen dramatically during the past decade. Every age is driving bicycles for pleasure, exercise, transportation and energy savings. Bicycling is often enjoyed by an entire family.

The young bicyclist of today will become the adult motor vehicle driver of tomorrow. Proper attitudes and skills taught and developed in early life will eventually determine the way an automobile will be driven in the future.

Our responsibility is to help prepare Montanans to enter the highway transportation system as safe, knowledgeable and accountable road users.

The Montana Bicyclist's Guide *is a manual for bicycle drivers of all ages. It contains traffic laws, safety rules, equipment requirements, traffic controls applicable to operators of bicycles, purchasing, maintenance and protection techniques, hazard recognition procedures and a section on commuting and touring by bicycle.*

We encourage all Montana bicyclists to read this booklet and apply its suggestions.

GEORGIA RICE	THOMAS L. JUDGE	MIKE GREELY
Superintendent of Public Instruction	Governor	Attorney General

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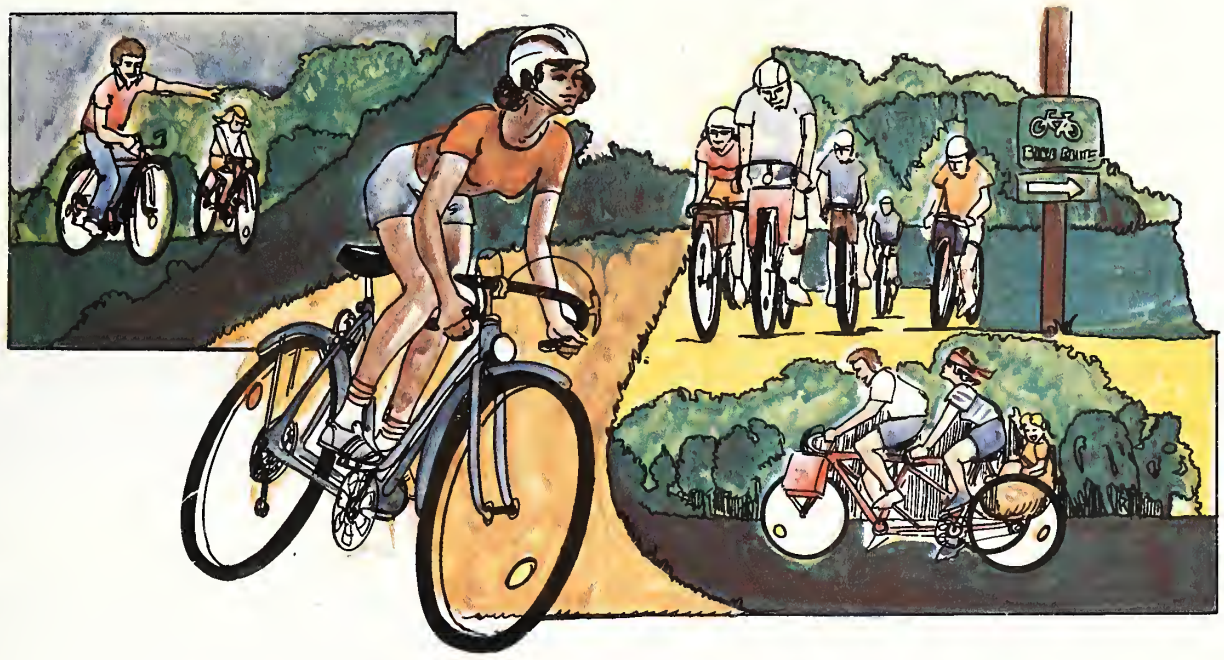


Welcome to Bicycling

Do you want to join the increasing number of bicyclists in this country? Probably you have heard that bicycling can be lots of fun. And besides being a popular sport, bicycling can keep you in good physical condition; it can save you money, and it is non-polluting to our environment. For many adult commuters, bicycling is a practical form of transportation.

But bicycling can also be dangerous. Each year hundreds of bicyclists are killed and many thousands more are injured in traffic. As a bicyclist, your only real protection is yourself—your understanding of traffic laws, your skill in handling the bicycle, and your ability to act if hazards appear.

This manual has been prepared to teach good safety practices and to inform bicyclists about the laws for driving on public streets and highways. Whatever your reasons for bicycling, you will enjoy it more if you learn to drive safely.

The Bicyclist's Guide provides an introduction for those of you who are just getting started in bicycling, facts for parents, and technical information for more experienced bicyclists. You will also find helpful tips on maintenance, bicycling techniques and special equipment.

Responsibility

If you are planning to purchase a bicycle for yourself or your child, you should realize that this is a major decision. A bicycle is not a toy; it is a vehicle governed by traffic laws.

Questions for Parents

Bicyclists are subject to the same traffic laws as automobile drivers. You are responsible for seeing that your child understands and obeys the signs, signals and traffic regulations described in this manual. Before buying a bicycle, ask yourself the following questions:

- ☐ Is my child mature enough to understand the rule and responsibilities of a bicyclist in traffic?
- ☐ Am I willing to shop carefully for a well-made bicycle that is the correct size for my child?
- ☐ Am I willing to help my child learn how to ride a bicycle?
- ☐ Do we live in an area which is safe for children on bicycles? If not, are there bicycle paths or other nearby places where children may learn to bicycle safely?
- ☐ Will I make sure that my child knows how to handle a bicycle safely and is willing to follow safe driving practices?
- ☐ Do I have the patience not only to teach my child traffic laws and safety rules, but to **enforce** them as well?
- ☐ Will my child keep the bicycle in good mechanical condition, and will I assist with bicycle maintenance and repairs which are beyond my child's skill?

You should consider purchasing a bicycle for your child only if your answers are all "yes ".

Legal Responsibility

According to Montana law, a bicyclist must obey all state and local automobile driving laws. As a parent, you can be held legally responsible if your child becomes involved in an accident while bicycling after dark without reflectors or a lighted headlamp. A parent is also responsible for the child's violation of any other traffic laws.

Local Ordinances

In Montana, cities, towns and other local municipalities make laws for bicycle riding, registration and licensing. Some towns have bicycle laws [ordinances] and others do not. Some towns permit bicycling on sidewalks in certain areas or at certain ages while others prohibit all sidewalk bicycling. Check with your local police station for a copy of the local bicycle codes. A bicyclist is required to obey all local bicycle ordinances as well as the state motor vehicle laws.

In Montana the local police must be notified of an accident involving a bicycle and motor vehicle, if the accident results in personal injury or damage to the property of any person in excess of $100.00.

To report an accident you must have the license plate number of each vehicle, together with the names and addresses of all persons involved.

Montana State Laws for Bicyclists

Use a fixed regular seat for riding (MCA 61-8-603)

Do not hold onto any roadway vehicle while riding (MCA 61-8-604)

Ride on the far right side of the roadway or on the shoulder. If there is a bicycle path use it instead. (MCA 61-8-605 a)

Ride single file, except on a bicycle path or roadway lane. (MCA 61-8-605 b)

Keep at least one hand on the handlebars while riding, especially when carrying things. (MCA 61-8-606)

When riding your bike at night, it must be equipped with a white light on the front, visible from 500 feet, and a red lamp on the rear should also be used, in addition to the rear-facing reflectors which are required. (MCA 61-8-607a)

Use a brake that can make wheels skid while stopping on dry, clean, level pavement. (MCA 61-8-607 b)

PART I. PURCHASING

The bicyclist will be able to:
- ☐ compare different bicycle models.
- ☐ determine the best bicycle model for his or her needs.
- ☐ label major bicycle parts.

Which Bicycle to Choose?

The most common bicycle models are the **Middleweight** and **Lightweight** types. Each style has a range of equipment to match your needs and the amount of money you want to spend. The total cost will depend on the type of bicycle you choose, how strong the frame is, how good the materials are, and how well it is made.

Middleweight

The Middleweight bicycle is very strong. It is best for beginners. This kind of bicycle usually has a foot (coaster) brake. A coaster brake works by pushing backward on the foot pedal. This is the best kind of brake for a youngster.

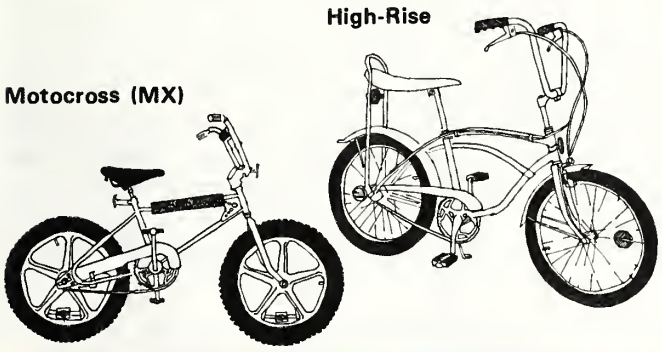
Single-Speed

The Single-Speed Middleweight usually weighs 50 to 70 pounds and has no gear shift. It has large "balloon" tires with inner tubes. The tires are soft and give a smooth ride, even over gravel roads. The padded bucket seat makes the ride smooth, too.

Motocross (MX)

This style usually weighs 35 to 45 pounds and has no gear shift, but some models have a three-speed gear shift in the handlebar grip. It has semi-high-rise handlebars with a padded crossbar for added strength. The heavy-duty frame will withstand rough riding, and the wheel rims often have large "mag-

style" spokes for strength. It has a long padded "MX" seat, small 20-inch wheels for quick turns, knobby-tread tires for more traction, and a rear coaster brake. The metal teeth on the "rat-trap" pedals prevent shoes from slipping. This bicycle is equipped with a large pedal crank so you can reach top speed in a short distance. It is often used by youngsters for dirt-track racing.



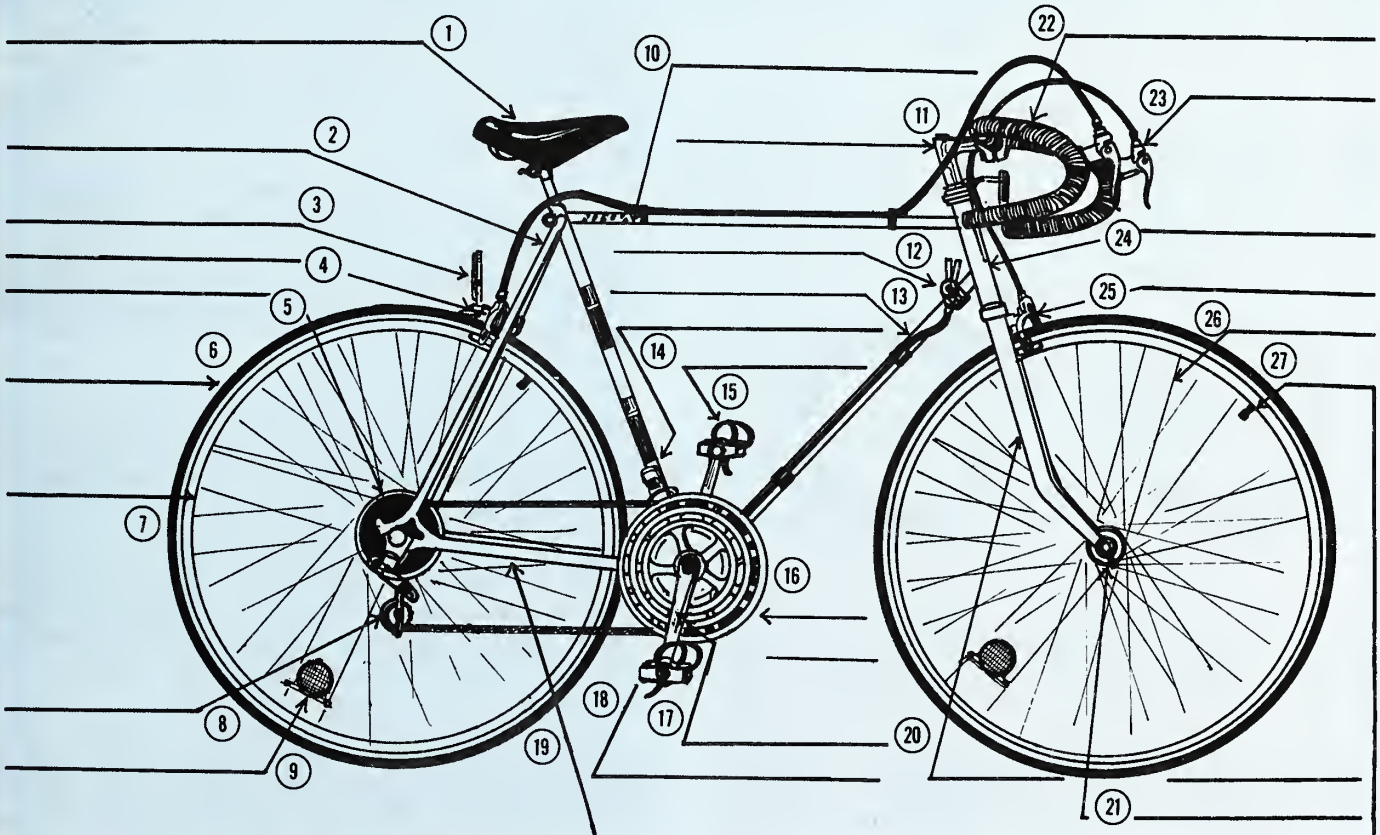
High-Rise

The High-Rise weighs 35 to 45 pounds and is similar to the Motocross, but it is for neighborhood use only. It has small 20-inch wheels, high-rise handlebars, plus a coaster brake and a long "banana" seat. Some models also come with hand ("caliper") brakes and gears. If your hands are small, it might be hard to work these brakes; also, front caliper brakes can pitch the rider forward if not used properly. Since high handlebars and a rear sitting position make it easy to fall off, the High-Rise bicycle is not a good choice for beginners.

Sometimes the gear control is mounted on the top tube, and this can hurt you in a fall; a gear shift on the handlebars is better. Also, a high "sissy bar" post behind the seat is not recommended if it is over five inches high. Riders tend to lean against it, causing the bicycle and rider to flip backwards. Sissy bars also break off easily. If you buy a used High-Rise model, remove the sissy bar.

Label the parts of this bicycle by matching the numbers on the list with those on the diagram.

1. Saddle
2. Seat Stay
3. Rear Reflector
4. Rear Brake
5. Free Wheel
6. Tire
7. Rim
8. Derailleur
9. Reflector
10. Top Tube
11. Stem
12. Shift Levers
13. Down Tube
14. Front Changer
15. Toe Clip
16. Chain Wheel
17. Crank
18. Pedal
19. Chain Stay
20. Fork
21. Hub & Quick Release Hub
22. Drop Bars
23. Hand Brake Lever
24. Head Tube
25. Front Brake
26. Spoke
27. Tire Valve



Lightweight Derailleur

Lightweight

The Lightweight bicycle is built for long-distance travel. The less the bicycle weighs and the more gears it has, the easier it is to drive without getting tired. This model has hard innertube tires that go fast on smooth roads but can slip on gravel. It is not recommended for young bicyclists.

Three- or Five-Speed Recreational

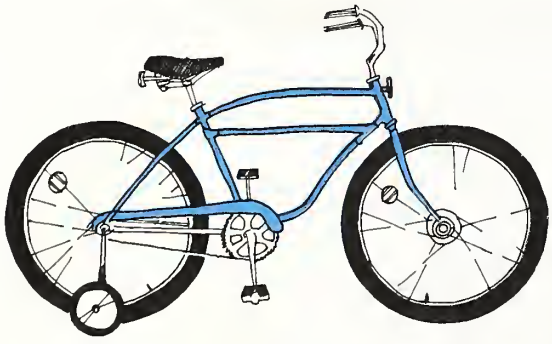
This style has a gear control on the handlebars. It has upright handlebars and caliper brakes, besides a coaster brake on some three-speed models. Tires are the "clincher" innertube type (also known as "wired-ons"). Wheels are no smaller than 24 inches. This bicycle looks like a Single-Speed Middleweight with narrower tires and a lighter frame.

Lightweight Derailleur

The Lightweight Derailleur weighs less than the Three- or Five-Speed Recreational model. It has front and rear caliper brakes, a narrow unpadded touring seat, and upright or dropped-down handlebars. To use dropped-down handlebars, you either bend forward to reduce wind resistance, or sit upright to see the traffic around you. This model may have clincher tires, or it may be equipped with more expensive "tubular" innertube tires (also known as "sew-ups").

"Derailleur" refers to gears. There may be five, ten, fifteen (up to twenty-one) gears, depending on the number of chain wheels and sprockets. To shift gears, you work a lever near the handlebars which moves a guide that "derails" the chain from one sprocket to another. Gears are also called "speeds".

Special Models

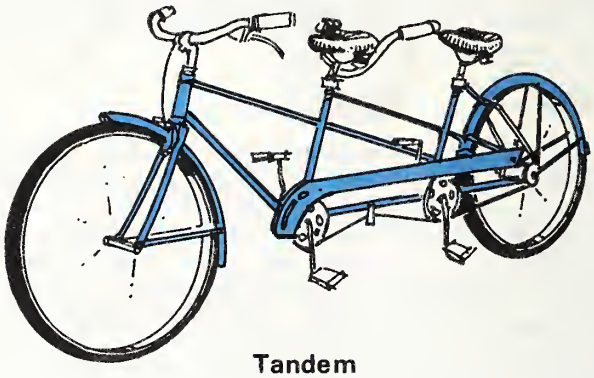


Sidewalk

This bicycle is for very young beginners. It looks like a small Single-Speed Middleweight, usually with two rear training wheels for extra stability. It must have coaster brakes to be safe. Some models have an adjustable top tube that converts to boys' or girls' style. The better brands have wide innertube tires rather than solid rubber tires. This model should be used only on sidewalks and other safe areas - never on the street.

Adult Triwheeler

The large tricycle design is useful for shopping, when equipped with a wire carrying basket between the two rear wheels. It often has front caliper brakes in addition to the usual rear coaster brake.



Tandem

This is a bicycle built for two. You may choose among different sizes, weights, gears, brakes and saddles. On a Tandem, two bicyclists can travel for long distances. It is best for experienced riders, because they must pedal it together in the same rhythm. At slow speeds, steering or turning this bicycle is difficult.

Collapsible

The **Minibike** and **Collapsible Ten-Speed** models are for adults. Both types fold for easy storage. The Minibike has a small frame and wheels, with gears like a Lightweight. The Collapsible Ten-Speed is a full-size Lightweight.

Custom Built

These models are costly because the frames are made of extra-strong, lightweight metal alloys. Also, each frame is built exactly for one owner's body size and riding needs.

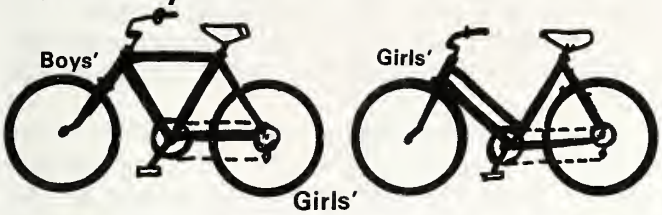
Track

This style has one fixed gear, no brakes, ultra-light tubular tires, and a narrow, unpadded racing seat. Backpedaling slows its speed. A Track bicycle is used only on smooth, high-speed racing tracks.

Road Racing

A custom-built touring bicycle is usually more expensive than a Track bicycle. Higher cost is due to special derailleur gears and other parts needed for maximum riding efficiency. This bicycle has tubular tires and a narrow, unpadded racing seat. It is used for long-distance travel on many kinds of roads.

Frame Styles



Girls'

The girls' frame is designed to allow the rider to get on and off easily. It is not as strong as other frame styles, and tends to flex as you ride, especially with heavy loads on the rear. It is good for learning to ride and for light use.

Boys' (Diamond)

The boys' frame is the strongest type. The top tube provides a strong tie between front and rear, so the bicycle has less flex while moving.

Mixte

The mixte frame is almost as strong as the boys' frame. Frame sizes are limited in this style.

2

The bicyclist will be able to:

- ☐ choose the proper bicycle frame size.
- ☐ adjust bicycle parts to fit the rider.
- ☐ tell which bicycle accessories are required by law.
- ☐ identify the basic parts of the bicycle and their functions.

Buying Your Bicycle

Eight Questions to Ask

How can you be sure that you have the best bicycle for your needs? First of all you must choose carefully. Review these points:

- ☐ Am I a beginner, or have I bicycled a lot?
- ☐ Do I bicycle over short or long distances?
- ☐ Will I give my bicycle gentle or rough use?
- ☐ Which special features would help me to use a bicycle for the purposes I have in mind?
- ☐ How much bicycle maintenance can I do?
- ☐ Where will I keep the bicycle?
- ☐ How much do I want to spend? (Would a good used bicycle do the job?)
- ☐ Is there a reliable bicycle dealer nearby?

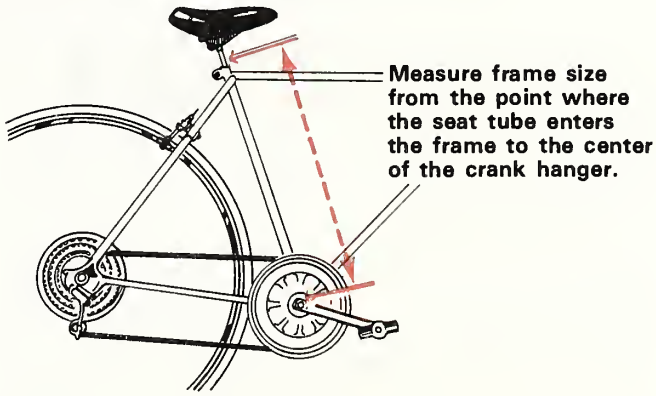
Where to Shop

When buying a bicycle, it is wise to shop at a local bicycle dealer. The owner knows how to put a bicycle together and will cover the warranty on repairs.

Fitting the Bicycle to the Rider

Probably the most important part of buying a bicycle is to make sure that it fits the rider. If a bicycle is too large, it will sway from side to side; a small rider may not be able to stop a large bicycle without falling over. On the other hand, if the bicycle is too small, the rider's knees will bump against the frame and the bicycle will be hard to steer. **Nobody should every buy a too-large bicycle with the idea that the child will "grow into" it.**

How to Measure Frame Size

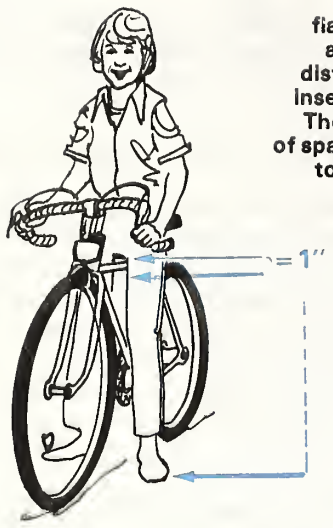


Proper Size

Bicycles are measured by frame size. The frame size is measured from the point where the seat tube enters the frame to the center of the crank hanger, as the drawing shows. To find the correct frame size, match your leg length to frame size as shown on the chart.

Bicycle Frame and Wheel Size Chart

Age	Leg Length (inseam to floor)	Frame Size	Wheel Size
2-4	Less than 22½ inches (57.15 cm)	depends on age	12-inch (30.48 cm)
5-9	Less than 22½ inches (57.15 cm)	depends on age	16-inch (40.64 cm)
	22½ inches (57.15 cm)		20-inch (50.80 cm)
	26-28 inches (66.04-71.12 cm)		24-inch (60.96 cm)
10 & over	28-29 inches (71.12-73.66 cm)	17-inch (43.18 cm)	26-inch (66.04 cm)
	30-31 inches (76.20-78.74 cm)	19-inch (48.26 cm)	
	33 inches (83.82 cm)	21-inch (53.34 cm)	
	34 inches (86.36 cm)	23-inch (58.42 cm)	
	31½ inches (80.01 cm)	19-inch (48.26 cm)	27-inch (68.58 cm)
	32½ inches (82.55 cm)	21-inch (53.34 cm)	
	33½ inches (85.09 cm)	22-inch (55.88 cm)	
	34½ inches (87.63 cm)	23-inch (58.42 cm)	
	35½ inches (90.17 cm)	24-inch (60.96 cm)	
	36½ inches (92.71 cm)	25-inch (63.50 cm)	



Stand barefoot with both feet flat on the ground and measure the distance from your inseam to the floor. There should be 1" of space between the top tube and you.

To match your leg length to frame size on the chart, first measure the length of your leg. Take off your shoes and stand with both feet flat on the ground. Now measure the length of your leg (the inseam distance to the floor), as the drawing shows. Finally, match your leg length to the correct bicycle frame size shown on the chart.

After choosing your frame size, use the following methods to double-check the bicycle's fit:

(1) **Measuring the top tube length:** Lay your forearm along the top tube, with your elbow touching the seat tube. Your fingertips should just reach the handlebar stem. If you can't reach the handlebar stem in this position, you will have to bend too far forward to reach the caliper brake levers when riding. Distance between seat tube and handlebar stem increases with frame size. Measure a girl's bicycle where a top tube could be placed. If the top tube is not the correct length, you may have the wrong frame size.

(2) **Measuring the top tube clearance:** Take off your shoes and stand over the top tube of the frame, with both feet flat on the ground. You should be able to straddle the top tube with an inch to spare, so you can mount or dismount easily. If the top tube is too high or too low, you may have the wrong frame size.

Saddle Height

State law requires that a bicyclist must be able to sit on a permanent seat while riding. A saddle that is too high is very unsafe, but too-low a saddle can strain the legs. The correct seat height allows a rider the maximum pedaling power, but beginners sometimes put their seats lower than usual to make getting on and off easier.

To find the correct seat height, have someone hold the bicycle upright while you sit on the saddle in stocking feet, resting your **heel on the pedal in its lowest position.** Your leg should be straight, without stretching the muscles. If you adjust the seat to fit you in this position, then your knee will be slightly bent when you push the pedal to the bottom of its stroke **using the ball of your foot.** This allows you the maximum pedaling power; it is the correct saddle height.

Another way to determine the correct height of the saddle is to adjust it so that you can sit on the seat with the balls of your feet resting lightly on the ground.

To move the saddle to the correct height, loosen the bolt in the bracket at the top of the seat tube. Most seatposts lack markings to show the maximum distance the post should be raised, so check to make sure that at least two inches of the seatpost remain inside the tube.

Besides checking the height, notice if the top surface of the saddle is level or tilts a little toward the rear of the bicycle. You don't want the saddle to tilt forward, because this will put too much strain on your arms as you ride.

Equipment Inspection

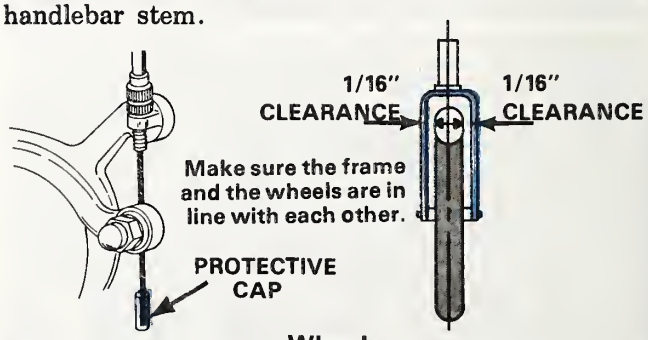
The U. S. Consumer Product Safety Commission publishes safety regulations for bicycles. Look over your bicycle carefully to make sure that it meets these standards, which are included here.

Frame

Inspect the welding on the frame's joints, to make sure it is smooth with no fractures in the metal. A hairline crack may break if jolted suddenly. Look at the frame to see if any tubes are buckled or bent. Check for cracked wheel forks. A weak or damaged frame is very unsafe.

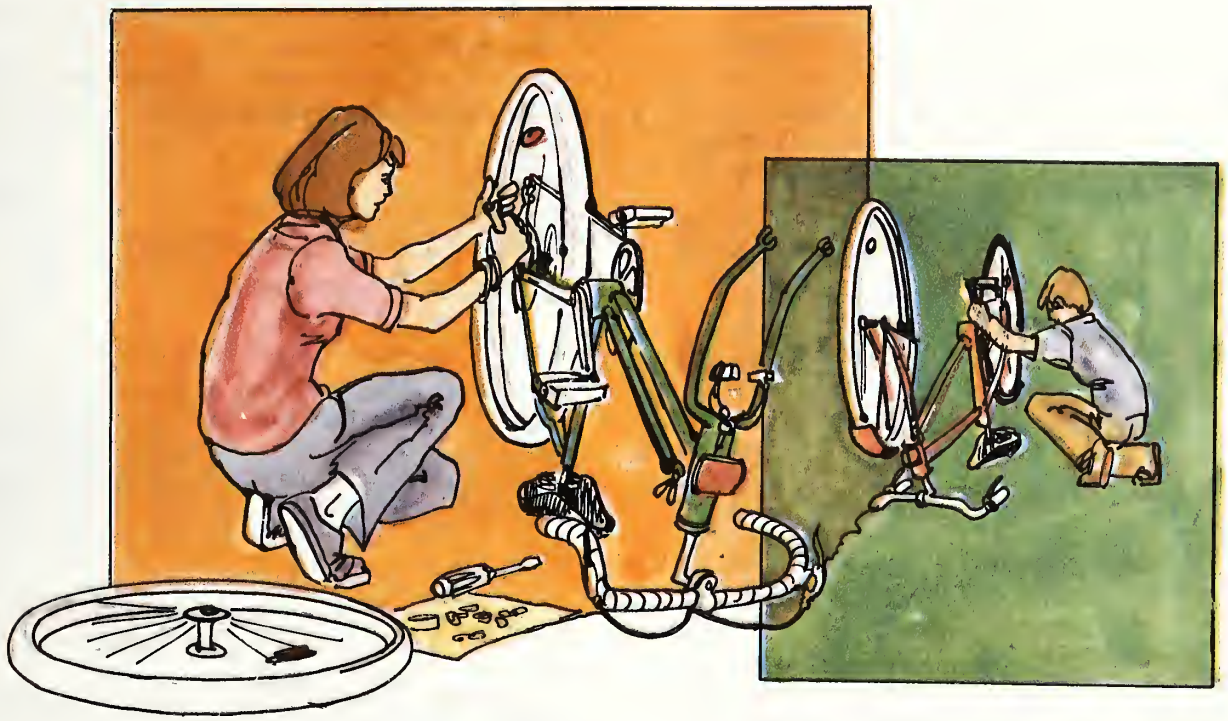
Look closely for sharp edges that might injure you in a fall. File them down and cover with heavy protective tape. Wire control cable ends must be covered with protective caps.

If there is a gear shift mounted on the top tube, it must not be more than 3½ inches away from the handlebar stem.



Wheels

Check to see if the frame and wheels are in line with each other. The handlebar stem should be in line with the front wheel, and the wheels should not lean to either side. Holding the bicycle's frame, lift it off the ground and spin the wheels. As the wheels turn, there must be at least one-sixteenth-inch clearance between each tire and any part of the frame.



Ride the bicycle to make sure that it feels the same when turning left or right. Also see if the bicycle steers straight when you are not leaning. Check for missing or loose spokes.

Tires

Tires should have plenty of tread for sure stops and turns. Check for cracks in the rubber, punctures, and leaks caused by loose valve stems.

Handlebars

Regular upright handlebars should be as wide as your shoulders. They should be set below your shoulder level, but not more than sixteen inches above the saddle surface. The handlebar grips should point slightly downward, with their tops about the same height as the saddle. You should be able to hold the grips without stretching your arms, while leaning slightly forward.

For dropped or turned-down handlebars, the higher middle section should be level with the saddle or slightly below it. These handlebars help to distribute body weight evenly.

If you need to adjust the height of the handlebars, remember that at least two inches of the handlebar stem must remain inside the head tube for the handlebars to be safe.

Brakes

Ask to take a road test before you buy. Coaster brakes should work smoothly and without noise. Make sure that caliper brake levers move easily, and that they don't touch the handlebars when you squeeze the levers to stop.

A bicycle with front caliper brakes also needs a rear brake (caliper or coaster) for safe stopping. The U.S. Consumer Product Safety Commission regulations require that caliper brakes should be able to stop a bicycle within fifteen feet from a speed of fifteen miles per hour. Coaster brakes should be able to stop a bicycle in fifteen feet from a speed of ten miles per hour.

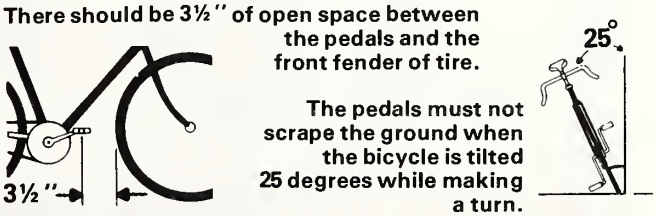
Check hand brake pads for wear. The brake blocks should make even contact with the wheel rim. All-weather brake pads are the best choice.

State law requires that a bicycle's brakes be able to take hold quickly and make the braked wheel [s] *skid on dry, clean, level pavement.*

Pedals

Pedals must have either treads or toe clips to keep feet from slipping.

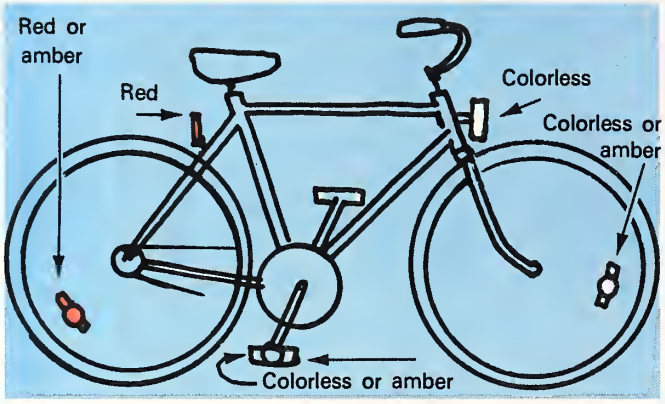
There should be at least 3½ inches of open space between the pedals and the front fender or tire. Otherwise, your shoe could get caught between a pedal and the front wheel.


There should be 3½" of open space between the pedals and the front fender of tire.
3½"
25°
The pedals must not scrape the ground when the bicycle is tilted 25 degrees while making a turn.

The pedals must not scrape the ground when the bicycle is tilted 25 degrees while making a turn. A dragging pedal could throw the bicycle off balance.

Chain

The drive chain must be strong and undamaged. To prevent feet or clothing from tangling in the chain, single-speed bicycles must have chain guards. Chain guards are not required where the chain can be pedaled in reverse, as on derailleur models; however, the derailleur must be guarded.



Reflectors

Except for Sidewalk models, all bicycles must have reflectors on the front, back, pedals and sides. The bicycle should have reflectors attached to the wheel spokes. These reflectors make a bicycle visible from all directions at night:

Front:	colorless
Rear:	red
Pedals:	colorless or amber
Spokes:	colorless or amber (front)
Spokes:	red or amber (rear)

The top of the rear reflector should be at least three inches below the saddle.

Adjust and tighten spoke reflectors so they won't wedge against the turning wheels.

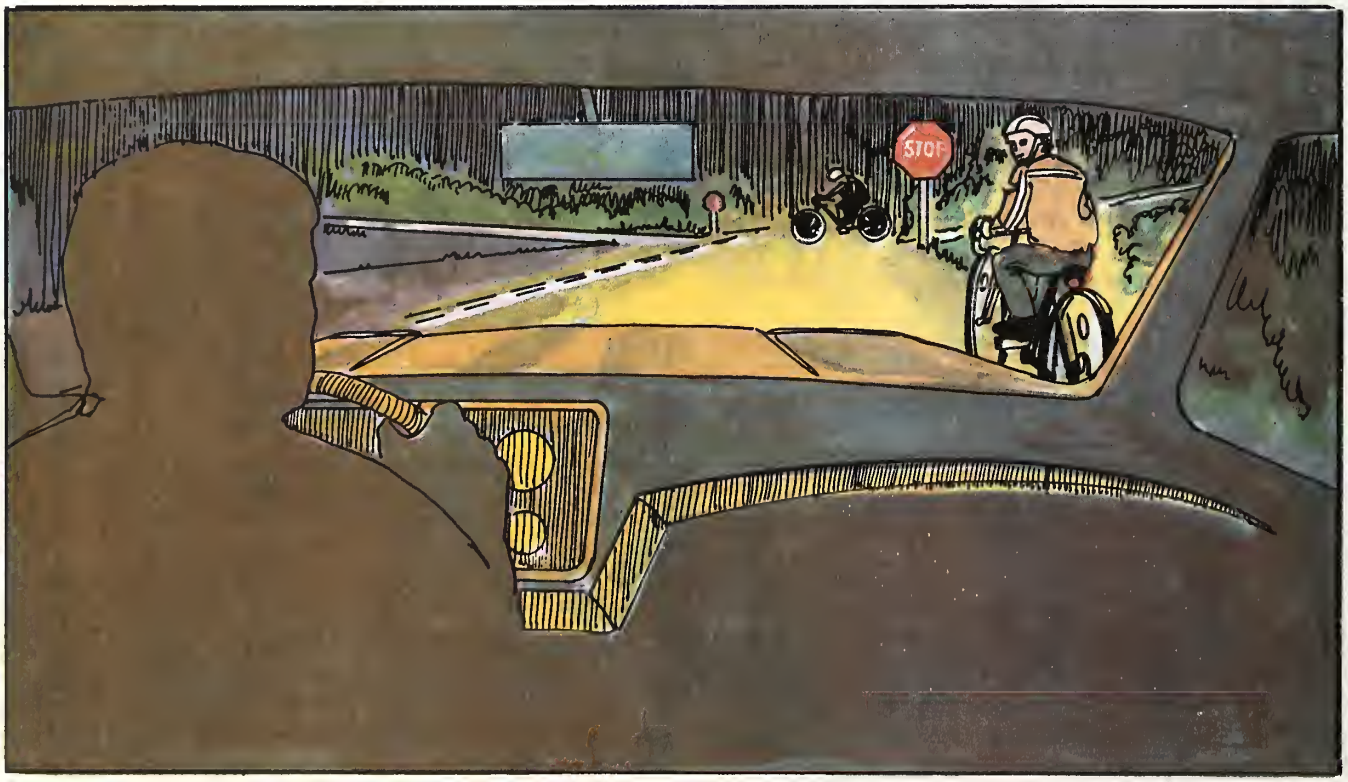
Required Equipment for Riding in Darkness

Montana state law requires that a bicycle used for riding in darkness be equipped with a front lamp and a rear reflector to meet certain safety standards. The front lamp must have a white light that can be seen at least 500 feet ahead of the bicycle. The rear reflector must be red, and be of a type approved by the Division of Motor Vehicles.

A red lamp that can be seen 500 feet behind the bicycle may also be used, in addition to the rear red reflector.

You may choose either a battery-powered or generator lamp. A generator lamp will not run down like a battery-powered type, but a generator lamp will not work unless the wheels are turning. If you install a generator lamp, make sure that it cannot work itself loose and jam the wheel.

For extra safety, choose a headlamp bright enough to show you the roadway ahead, as well as making your bicycle visible to other drivers.



3

The bicyclist will be able to:

- ☐ describe the purpose of optional equipment.
- ☐ select the optional safety equipment needed for maximum bicycling protection.

Optional Safety Equipment

The law defines minimum safe equipment standards. For more protection choose the extra equipment you need.

Reflectorized Materials

Reflectorized tape on handlebars, frame, fenders and clothing helps drivers to see you on a dark street. Wear white or light-colored clothing or a safety vest of "day-glow" orange fluorescent material that is easy to see.

Leg Light

You can buy a "T" light to strap on your left leg. This light shines at both ends, and shows your leg pumping the pedal—an eye-catching movement.

Safety Flag

This is a pennant-shaped flag on a six-foot flexible shaft. It is mounted on the rear axle or on the handlebars. Usually made of "day-glow" orange material, it helps when you enter traffic from a hidden road, or where heavy traffic hides a bicyclist from view. *Montana law says every bicycle is encouraged to be equipped with a flag clearly visible.*

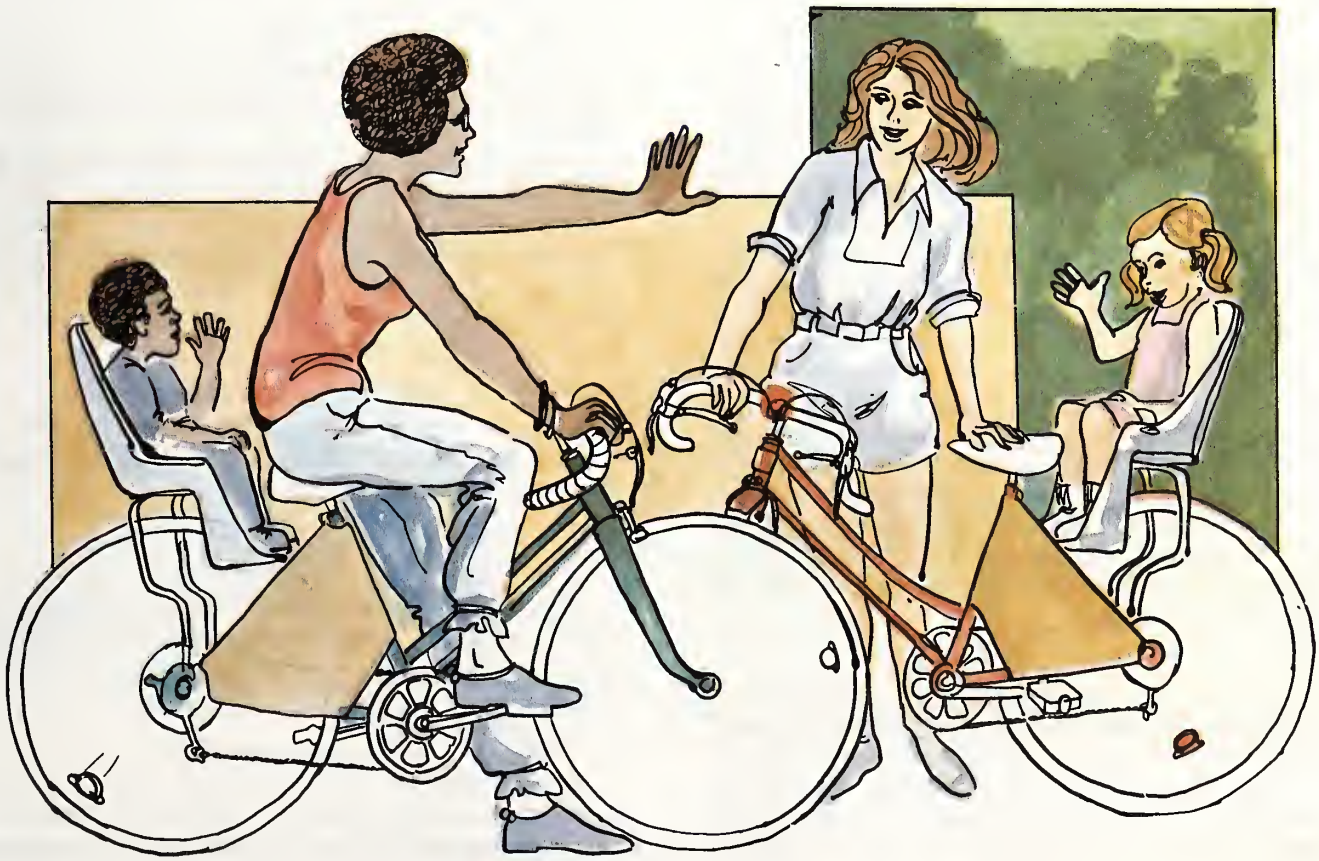
Rear Carriers

To be safe don't carry anything in your hands. Use rear-mounted carriers because they are more stable than carriers mounted on the front handlebars. *Montana law requires that you keep at least one hand on the handlebars while riding.*

Types of carriers include spring-action carriers, wire baskets, and more roomy saddle and pannier bags for touring. Back packs may raise the load too high and make balancing difficult. You can attach them to the bicycle with a "backpack toter" that holds the pack over the rear wheel. Keep loose clothing tucked inside the pack away from spokes. Make sure that the load rests on the frame or axle, not on the fenders or tires.

Helmets

Even at slow speeds a bicyclist's head can strike a solid object. Wear a helmet to avoid serious head injury in an accident. A good helmet has a strong outside layer, with crushable but rigid foam under it, and enough air space for comfort. To prevent skull fracture, choose a helmet which covers the back of your head fully, instead of one which comes only



halfway to your neck. Make sure that the helmet fits and does not block vision or reduce hearing ability.

Pants Clips or Straps

Reflectorized pants clips which strap your pants close to your leg help to keep clothing out of chain, spokes and pedals. They also help drivers to see you in the dark.

Horn or Bell

A bell should be heard at least 100 feet away from the bicycle. Don't forget that a loud shout is effective too! Whistles and sirens are not legal.

Mirrors

The bicycle may weave left or right when you turn your head to look for traffic behind you. A rearview mirror helps you to see the traffic behind without turning around. But choose your mirror carefully. A large mirror can hurt you in a fall against the handlebars. It can also reflect light into your eyes. A good mirror is the convex motorcycle type, set low on the handlebars, or a small mirror worn on your cap, glasses or the back of your hand.

Toe Clips (Toe Straps, Pedal Straps)

With practice these allow you to pull up, as well as press down on the pedals, giving added power to the wheels. They also prevent your feet from catching in the spokes or slipping off the pedals. Toe clips make backpedaling easier too.

Children's Seats

Keep in mind that anything over five inches above the saddle can be dangerous. If you do carry a child, use only the type of carrier which fastens to the rear frame of the bicycle, not just to the axle. Seats have been known to fall off with the child strapped in. The seat should have side rails, a restraining strap, foot rests and leg shields which separate the child's feet from moving spokes. A seat pad adds comfort. Seats fastened to the front frame or handlebars are unstable and should be avoided. Avoid carrying a heavy child on a Lightweight model for the same reason.

Carry a child on short rides only. Attach the child carrier to the bicycle of the strongest rider. Buy a helmet for the child at a sporting or motorcycle supply store. Warn the child to keep hands away from the wheels. Include extra clothing for comfort in cold weather, and put terrycloth on the child's seat for comfort in hot weather.

Kick Stand

A kick stand is used for parking the bicycle. Never lay the bicycle down flat, because this can damage gears, wheels, brakes and frame. Bicycles may also be placed against trees, poles or other strong objects for support.

PART II. MAINTENANCE AND PROTECTION

The bicyclist will be able to:

- ☐ perform regular maintenance tasks on basic bicycle parts.
- ☐ tell which bicycle repairs should be done by a professional mechanic.
- ☐ adjust handlebars and saddle.
- ☐ evaluate the overall condition of a bicycle.
- ☐ store a bicycle properly.

How to Take Care of Your Bicycle

A bicycle may run on leg power, but its parts need regular upkeep. A bicycle in good condition is safer to ride. If possible, take your bicycle to a repair shop once a year for a check-up.

Regular Maintenance

Cleaning, oiling, tightening and inspecting parts can be done by a young bicyclist with parent's help.

Frame

All nuts, bolts and fasteners must be tight. Check for loose parts such as fenders which could jam the wheels.

Rub the chrome or nickel-plated parts with a clean rag soaked in light machine oil to wipe off dirt and prevent rust. Clean the painted surfaces with a damp rag; then wipe dry. Put automobile cleaner and wax on the painted parts every three months. (Never polish wheel rims with wax, or brake pads will slip when you try to stop.)

Lights, Reflectors, Mirrors

Clean all lights, reflectors and mirrors. Replace worn-out batteries and bulbs.

Pedals

The pedals should turn freely and not wiggle from side to side. Put light machine oil next to the crank arm.

Wheels and Spokes

Wheels must be lined up so that they turn evenly between the forks without wobbling. A wheel that rubs against the forks can jam and cause an accident.

Bent or broken spokes can cause a wheel to wobble; spokes should be evenly tight so they hold the wheel in a perfect circle. To check for tightness, pluck the spokes like guitar strings, or let a pencil hit them as the wheel turns. They should sound the same all around.

If only one or two spokes are loose, you can tighten the base of each. But if many spokes need repair, get an expert to do the work. Also be sure wheel nuts are tight—so the wheels can't fall off.

Saddle

To adjust for correct seat height, raise or lower the seat by loosening the bolt in the bracket at the top of the seat tube; then retighten the bolt. Adjust the seat tilt by loosening the clamp under the seat; then retighten the clamp. Afterward, try hard to twist the saddle up and down, left and right. If it moves, retighten the bolt or clamp. Clean a leather saddle with saddle soap.

Handlebars

The handlebars should be tight, yet "give" a little when twisted hard, so they absorb the shock of a fall. But handlebars should never slip when you force down on them. If they do slip, tighten the adjusting nut where the stem meets the head tube; or tighten the stem binder bolt at the top of the handlebar stem.

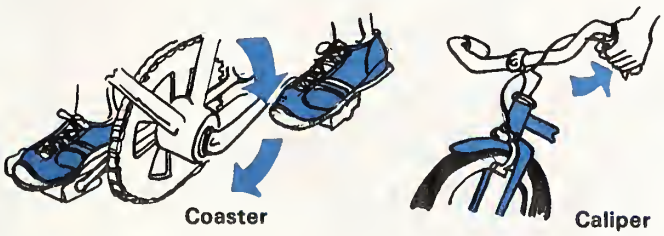
Cement loose hand grips to the handlebars.

Tires

Check your bicycle manual or the print on the tire sides for the correct air pressure. Then pump the tires up to the right air pressure using a hand pump and a bicycle tire gauge. Use a powerful gas station air hose carefully because the tires might explode under the pressure.

Remember that low air pressure can wear out tires, wheel rims and you. But over-inflation and thin rubber can cause a blowout if you hit a sharp object. Danger signs include cuts or cracks in the rubber, and thin thread. Keep oil and grease off the tires to prevent the rubber from rotting.

If you suspect an air leak, wipe a little soapy water on the tire and watch for bubbles of escaping air. If you detect air leaking from a valve stem, tighten it with a small wrench; some valve caps have a built-in wrench for this purpose.



Brakes (Coaster and Caliper)

Coaster (foot) brakes may never need repair if you take care of them. Every month put two or three drops of light machine oil in the nipple on the rear wheel hub. This lubricates the inside parts of the coaster brake and also the three- or five-speed gear system on Lightweight Recreational models.

A noisy coaster brake means trouble. The arm of the coaster brake must be firmly attached to the frame, or all braking power will be lost. These are problems for an expert mechanic.

Caliper (hand) brakes work best when the bicycle rims are clean and rust-free. Dirty rims wear down brake pads and cause the pads to slip when braking. Caliper brake pads should clear the wheel rim by one-eighth inch. Ask how to replace worn pads at a bicycle shop.

Lightly oil pivot bolts on the caliper brake arms once a month. Tighten brake bolts and nuts, and tie or tape brake cables to the frame so brake pads can't jam the wheels if brake bolts loosen.

Chain

Keep the chain clean. Oil it lightly or lubricate it with chain spray; too much oil will attract dirt. Check the chain often for broken links. On a single- or three-speed bicycle, the chain should have only one-fourth to one-half-inch slack, to prevent it from dragging and falling off. (Pedals, coaster brake and gears cannot work if the chain falls off.)

Chains stretch with wear and need tightening. Ask an expert to fix a loose or damaged chain. If the chain links jump or twist while passing over the chainwheel, you will have to replace the chain.

Gears

Speed selector cables stretch with use. Gears will almost shift themselves if the cables are loose, but they will be hard to shift if the cables are tight. For longer cable wear, place the gearshift lever in the slack (high gear or far forward) position when the bicycle is not in use.

A bicycle shop should adjust speed selector cables, as well as any other parts of the gear system that stick or slip. Use spray lubricant on gear levers and derailleur.

Bearings

Bearings must be cleaned and greased at least once a year to prevent the bicycle's joints from becoming stiff (dirty and rusty). Have a bicycle shop clean and grease the steering tube (headset), the front and rear wheel hubs, the crank hanger (bottom bracket connected to the pedals), and the pedals themselves. Some pedals are sealed and cannot be serviced, but other pedals can be taken apart to clean and grease them.

Storage

Store your bicycle indoors. Moisture may cause rust, and sunlight can make tires crack. To store for a long time, hang your bicycle on hooks from the frame, or hang the bicycle on a hook which holds the wheel rim. Taking the weight off the tires gives longer tire wear.

5

The bicyclist will be able to:
- ☐indicate the best type of bicycle locking equipment.
- ☐display the most secure method for locking a bicycle.
- ☐keep proper records on the bicycle.

How to Protect Your Bicycle from Theft

Locks

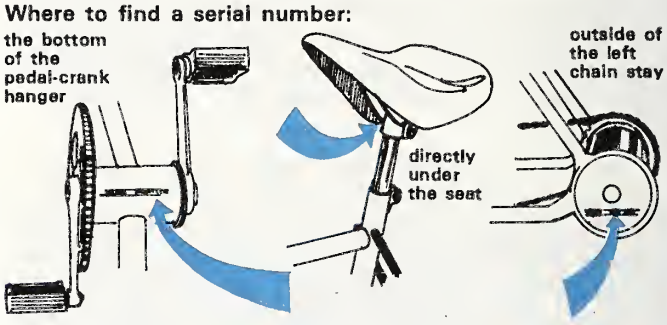
Each year thousands of bicycles are stolen. You will need to use a good lock in order to keep any bicycle. Never leave your bicycle unlocked in a front yard or open garage. When you leave your bicycle, attach it to a fixed object. Also, make sure that your bicycle can be seen easily. Hiding your bicycle behind bushes never hides it from thieves; it just gives them more cover while they break the lock.

One locking method is to use a good lock and a three-eighths-inch steel chain. Many chains are covered with plastic to protect the bicycle's finish. To lock your bicycle, feed the chain through **both the front and rear wheels as well as the frame**, and put the chain around a fixed object. Then lock the ends of the chain together. (A good fixed object is a telephone pole, bicycle rack or metal stairway railing.)

If your bicycle has "quick-release" wheels, you may remove the front wheel and lock it along with the rear wheel and frame. Or carry the front wheel with you to avoid having it stolen.

Never use a flimsy combination lock or a light chain. And remember, if you lock only the front wheel, that may be the only part left when you return!

Where to find a serial number:



Identification

Take the following steps for extra protection:

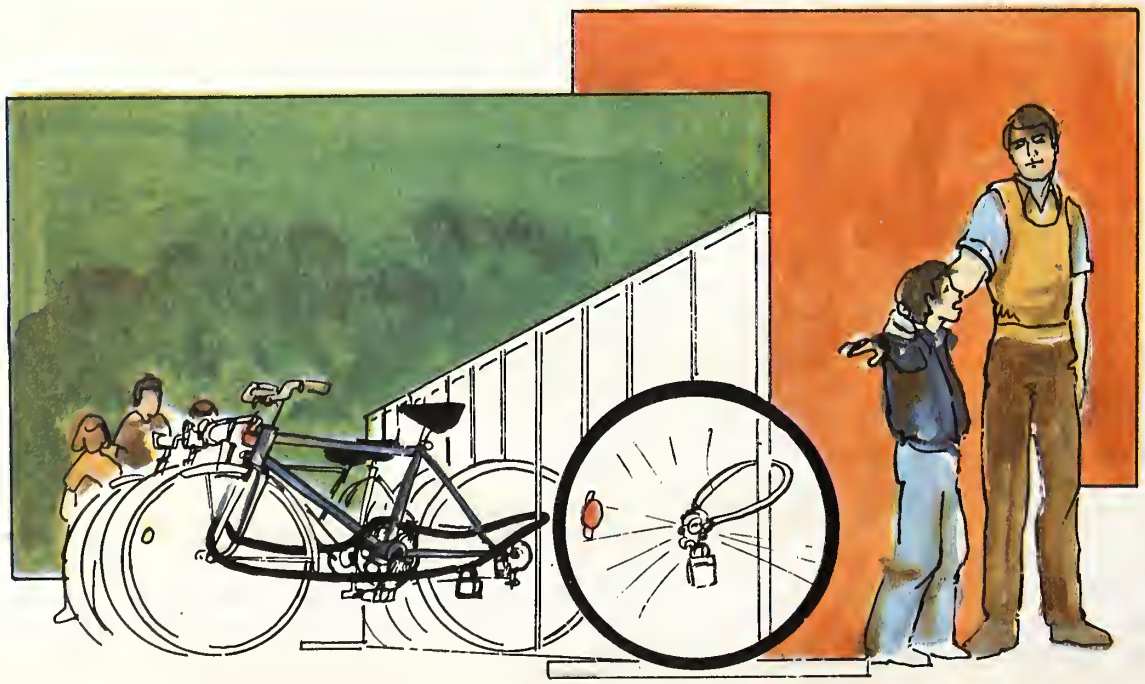
1. Locate the serial number on the bicycle. It is usually stamped on the bottom of the crank hanger, directly under the seat, or on the outside of the left chain stay.

2. Record the serial number and keep it in a safe place together with the sales receipt and a photograph of the bicycle.

3. Engrave your parent's or your own social security number, driver's license number, or other identification number on the frame, so it cannot be rubbed off by a thief.

4. If your bicycle is stolen, report it to the police immediately. Visit your local police station to check any stolen bicycles that have been turned in.

5. If your area has a bicycle registration program, be sure to use it.



Never lock only the front wheel. It may be the only part left!

PART III. SAFE RIDING

6

The bicyclist will be able to:

- ☐balance and pedal a bicycle with assistance.
- ☐describe basic riding techniques of braking, shifting gears, "ankling", avoiding obstacles, and making curves and turns.
- ☐demonstrate basic bicycling practice skills.
- ☐exhibit the six features of good riding form.

How to Ride a Bicycle

Basic Handling Skills

Everybody takes a few falls at first, so select a flat, open area with no traffic or other hazards. A school playground, vacant parking lot or level, grassy field is a good place for a beginner to practice.

Learning to Balance

Have someone face your bicycle, grasp the handlebars firmly and steady the front wheel for you.

Next, sit on the saddle and lean from side to side, to get a sense of balance.

Learning to Pedal

Have someone hold the back of the saddle and run behind your bicycle as you pedal slowly. When you can pedal smoothly without wobbling, the other person should quietly let go of the bicycle.

Starting to Ride by Yourself

After you have learned how to balance and pedal, follow these steps to get started without someone holding the bicycle:

(1) Lean the bicycle toward you.

(2) Swing one leg over the top tube.

(3) Look behind and to both sides to make sure the way is clear.

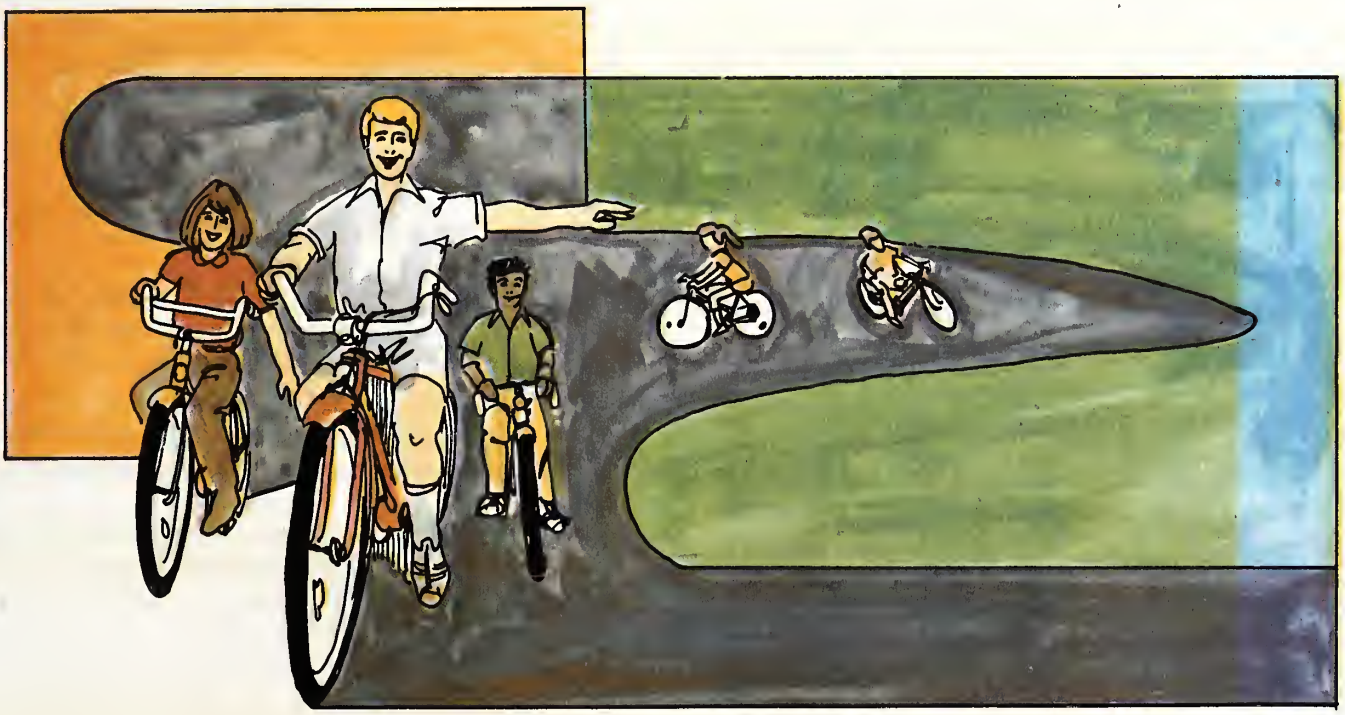
(4) Place the right pedal in the "up" position and put your right foot on it. (Use the left pedal if you are left-handed.)

(5) Press down on the high pedal, pushing off the ground with the ball of your other foot.

(6) Lift yourself back and onto the saddle.

(7) Put your other foot on the other pedal, and continue pedaling.

Do not try to start riding by sitting on the saddle first, or the bicycle will wobble.



Six Points for Riding in Good Form

(1) Always **ride with the ball of the foot on the pedal.**

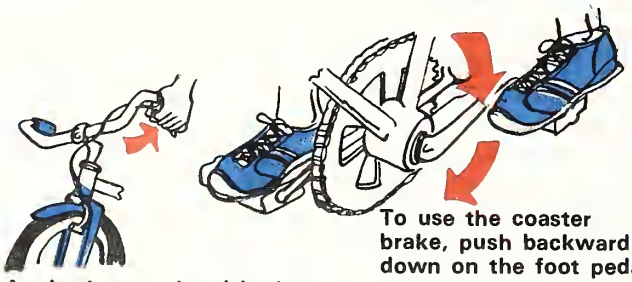
(2) **Pedal evenly.** Be sure you're not pedaling harder with one leg than the other; make each leg do half the work.

(3) **Pedal straight.** Keep your legs parallel with the frame of the bicycle; don't let your knees stick out at the sides. If you keep your knees in, you will get more power into your leg movement.

(4) **Keep your shoulders steady.** Letting your shoulders wobble will make your bicycle unsteady.

(5) **Keep your elbows in;** don't let them stick out. This will give you better steering control.

(6) **Look straight ahead,** not down at the bicycle, as you lean your body forward a little.



To use the coaster brake, push backward or down on the foot pedal.

Apply the rear hand brake before the front brake.

Stopping

A beginner should ride at slow speeds so that you can let the bike coast until you drag your feet gently to a stop. When you are sure that you can stop the bicycle in this way, next practice the following steps for proper stopping:

(1) Apply the rear coaster brake to slow down.

(2) When the bicycle is almost stopped, raise up off the saddle and stand on the pedals.

(3) Transfer your body weight to the foot on the low pedal.

(4) Lift your other foot off the high pedal and lower this foot close to the ground.

(5) Put your foot on the ground and stop, leaving your other foot on the low pedal.

Do not try to stop while you are sitting on the saddle, or the bicycle will fall to one side.

Braking

To use a rear coaster brake, push backward and down on the foot pedal.

If you have a multi-speed bicycle with front and rear hand brakes, **apply the rear brake before the front brake.**

If the rear wheel starts to skid, release both rear and front brakes a little to stop skidding. **Never release the rear brake completely when the front brake is on,** or you will sail over the handlebars and crash, even at very slow speeds.

Shifting Gears

Practice on level ground to keep the bicycle rolling while you learn to shift.

Three-Speed Gears

(1) Stop pedaling and coast.

(2) Change the shift lever to adjust the speed.

(3) Start pedaling again.

Derailleur Gears [Multi-Speed Bicycles]

(1) Pedal slowly.

(2) Move the shift lever to change gears.

(3) Adjust the shift lever until any scraping or rattling noise stops.

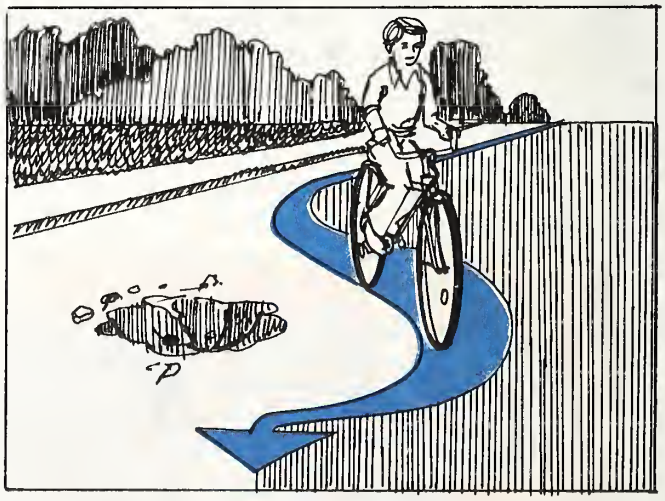
(4) Keep pedaling.

Never back-pedal while shifting, or try to shift when the bicycle is stopped.

Place the ball of your foot on the pedal, leaving your ankle flexible.

"Ankling" Technique

Place the ball of your foot on the pedal, leaving your ankle flexible so that it can help you to push the pedal.



Avoiding Obstacles

A bicycle's path of travel follows your line of sight. If you stare at an obstacle, you might steer the bicycle toward it. To steer around an obstacle, look at the clear pathway.

Curves and Turns

Practice on wide curves before attempting sharp turns.

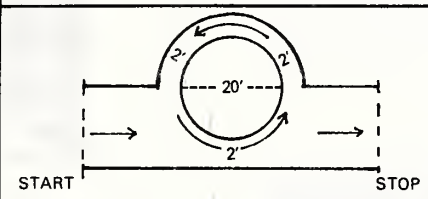
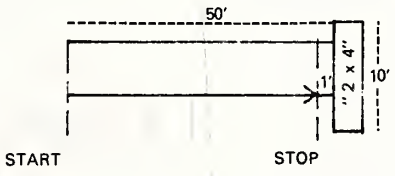
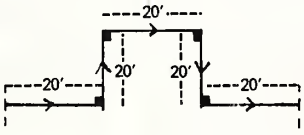
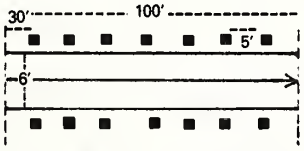
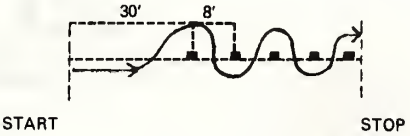
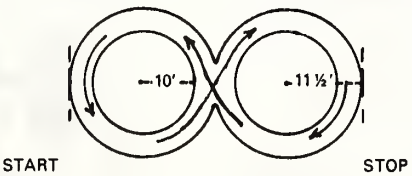
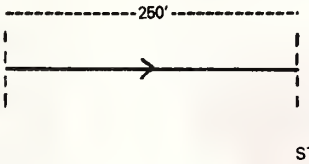
(1) **Brake before you reach the curve or turn.** (Braking while in the turn can cause a crash.)

(2) Next, steer for a moment toward the outside (wide side) of the curve or turn.

(3) Then lean slightly into the curve or turn as you go around it.

Bicycle Skills Exercises

Start each exercise with a maximum score of ten points. Each time a mistake occurs while doing an exercise, subtract the number of points shown. Your score for an exercise is the number of points that remain.

DIRECTIONS	DIAGRAM	SCORE (Maximum 10 Points)
EXERCISE 1: BALANCING ON A CURVE 1. Ride into the circle shown. 2. Ride around the circle twice. 3. Ride out of the circle; stop.		____ -1 poor riding position ____ -1 tire touches line ____ -3 foot touches ground ____ -4 bicycle stops ____ -4 rider falls off – Mistakes Total **SCORE:**____
EXERCISE 2: PEDALING AND BRAKING 1. Mount bicycle. 2. Ride toward board. 3. Brake to a smooth stop. 4. Stop one foot away from board. 5. Do not touch board.		____ -1 difficulty mounting bicycle ____ -1 poor riding position ____ -1 loss of control of pedaling ____ -2 bicycle skids while stopping ____ -3 tire touches board ____ -3 bike over one foot from board – Mistakes Total **SCORE:**____
EXERCISE 3: SIGNALING 1. Ride once around course shown. 2. Use proper hand signals to turn. 3. Use proper hand signal to stop.		____ -1 poor riding position ____ -1 bicycle hits corner block ____ -2 bicycle goes beyond corner ____ -3 incorrect signaling – Mistakes Total **SCORE:**____
EXERCISE 4: STEERING 1. Ride between two lines shown. 2. Do not touch lines. 3. Do not touch wooden blocks.		____ -1 poor riding position ____ -1 tire touches line ____ -2 tire goes over line ____ -3 tire touches block ____ -4 rider falls off – Mistakes Total **SCORE:**____
EXERCISE 5: WEAVING 1. Weave around blocks. 2. Do not touch blocks.		____ -1 poor riding position ____ -2 foot touches ground ____ -2 bicycle touches block ____ -2 bicycle moves block ____ -3 not riding between blocks – Mistakes Total **SCORE:**____
EXERCISE 6: FIGURE EIGHT 1. Ride around figure three times. 2. Do not touch sides of figure.		____ -1 poor riding position ____ -1 tire touches line ____ -3 foot touches ground ____ -4 rider falls off – Mistakes Total **SCORE:**____
EXERCISE 7: SHIFTING 1. Ride a distance of 250 feet. 2. Shift four times during ride.		____ -1 poor riding position ____ -2 looking down to shift ____ -3 not pedaling ____ -3 backpedaling while shifting ____ -4 bicycle stops ____ -4 rider falls off – Mistakes Total **SCORE:**____

7

The bicyclist will be able to:

- ☐ interpret the meanings of traffic signs, signals and pavement markings.
- ☐ present the proper hand signals at right and left turns and when stopping.

Traffic Regulations

Signs

Bicyclists must obey and use the same highway signs, traffic signals and pavement markings as other vehicle drivers, unless a law enforcement officer gives other directions. Traffic regulations tell where you are, what to expect, and how to drive safely.

Stop/Yield

Stop signs mean "stop".

Yield signs tell you to slow down and be prepared to stop, to allow pedestrians and nearby vehicles to enter the roadway ahead.

Warning

Warning signs tell you to slow down and to watch out for hazards.

Winding Road | School Crossing | Road Construction

Information

Information signs tell you which way to go for special services or routes.

Regulation

Regulation signs tell how fast you can ride and in which direction.

Traffic Signals

You must obey traffic signals when riding your bicycle.

Traffic Signals

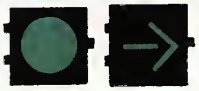
STEADY RED
Stop

FLASHING RED
Stop, then proceed.

STEADY YELLOW
Warning

FLASHING YELLOW
Slow down, move with caution

STEADY GREEN
Proceed



GREEN ARROW
Turn as indicated

Pedestrian Signals

You must also obey pedestrian signals when walking alongside your bicycle.

Pedestrian Signals

WALK
Leave the curb

DON'T WALK-FLASHING
Complete crossing or do not cross.

DON'T WALK
Do not leave curb.

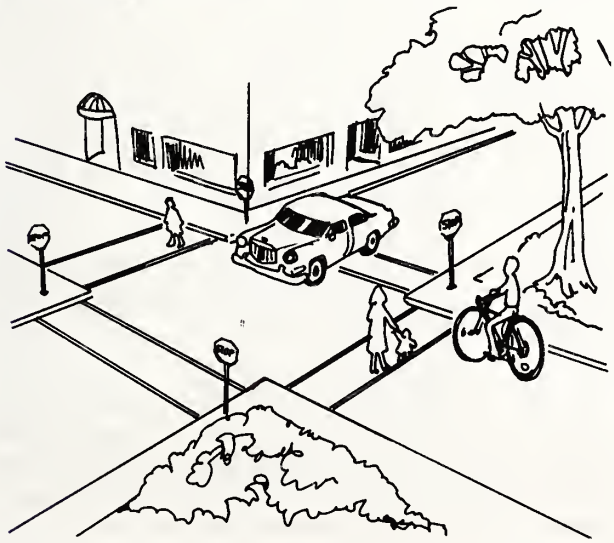
Pavement Markings

Crosswalk Lines

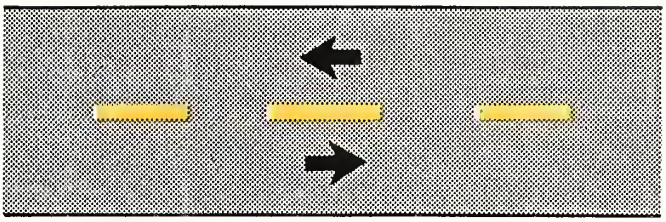
Stop before entering the crosswalk, to allow pedestrians to cross before you proceed.

Stop Lines

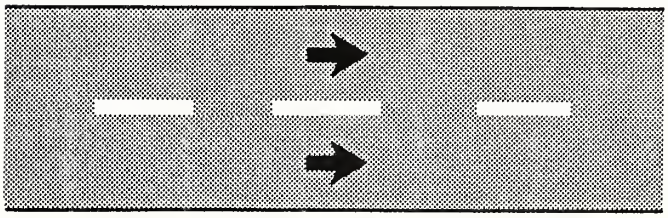
Stop before crossing the stop line next to a stop sign or traffic signal.



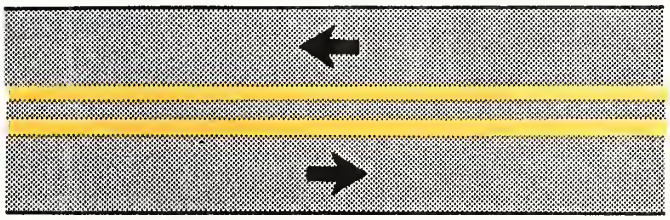
Pavement Markings



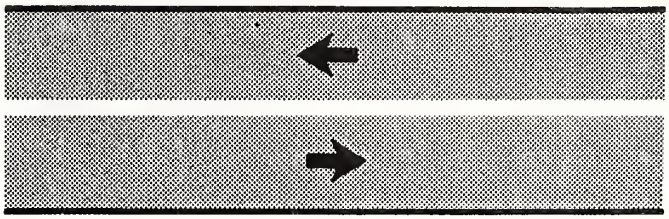
Single Broken Yellow Line
(Road Center Line: Passing Allowed)



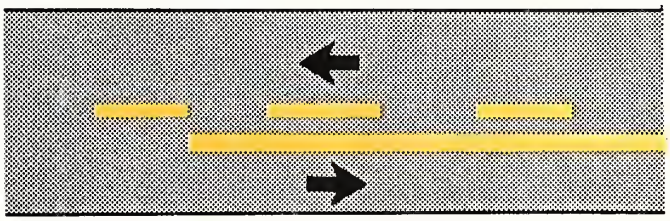
Single Broken White Line
(dividing line between one-way lanes)



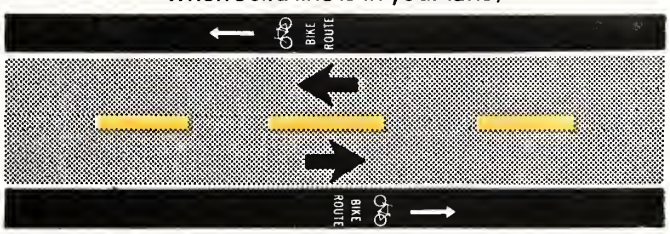
Double Solid Yellow Line
(Road Center Line: No-Passing Zone)



Single Solid White Line
(line marking the side of the road)



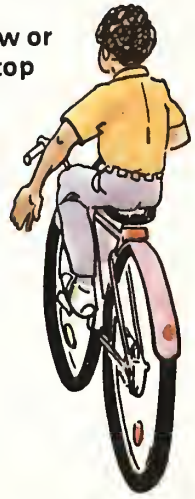
Single Broken/Single Solid Yellow Lines
(Road Center Line: passing not allowed when solid line is in your lane)



Bicycle Lanes or Pathways
(located on roadway shoulder between solid white lines)

Hand Signals

Signals must be given whenever making turns, changing lanes, or stopping. The correct hand signals are shown below. Electric turn signals may be used along with hand signals.



Slow or Stop

Always use proper hand signals.

Turning Left

Turning Right

8

The bicyclist will be able to:
- ☐ identify common traffic patterns.
- ☐ recognize and predict road hazards.
- ☐ define risky situations related to bicycling.
- ☐ react to hazards so accidents can be avoided.

How to Avoid Hazards

Obeying traffic laws will help you to avoid most problems, but your skill and judgment are the keys to bicycle safety. Look for hazards at all times. Remember that motorists cannot see a bicycle as easily as they can see other vehicles.

Motor Vehicle Traffic Patterns

Whenever you move into traffic, you must watch out for yourself and for the motorist. Most car drivers scan the road for large vehicles, not for small objects. Assume that drivers will not see you. Don't move into traffic until you make eye contact with the other driver(s).

Entering the Roadway

Look before entering a street. Motorists may not have time to react if you simply pop into view from the side of the road. If entering from the sidewalk, walk your bicycle onto the street and then get on to ride.

Look both ways and slow your speed before entering traffic from a bicycle lane.

Intersections

At intersections stay clear of motor vehicles and pedestrians. Slow down and look both ways before moving forward. Remember that you must have a full green light to enter an intersection with a traffic light.

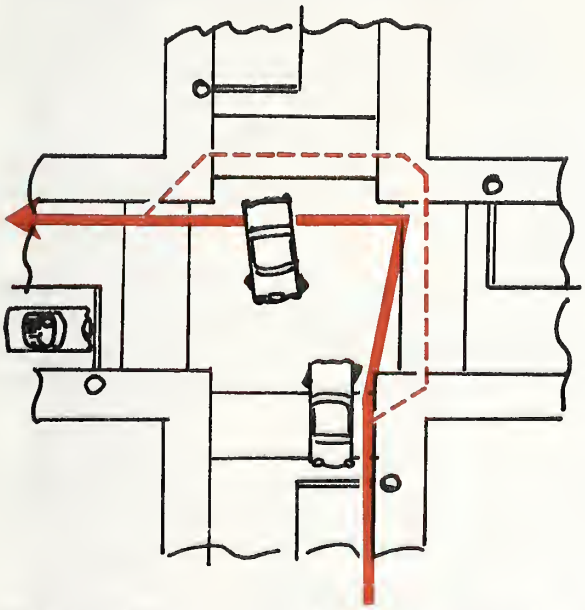
Whether you are turning right or going straight through an intersection, wait for the vehicle ahead of you. Never pass a vehicle on the right-hand side, because it's hard for the driver to see you. If you are behind a big car or truck, don't follow too closely.

There are two methods for making a left turn at an intersection. In heavy traffic, or if you are a new bicyclist, walk your bicycle through the crosswalks as a pedestrian. But in light traffic where your bicycle can be seen easily, and if you are skilled, make a normal vehicle turn from the center line or left-turn lane. Refer to diagrams on page 23.

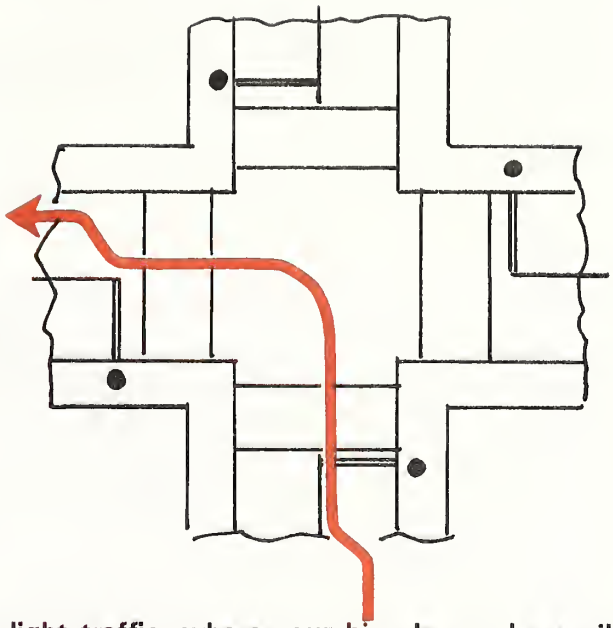
Direction of Traffic

Always ride with the traffic, not against it. When you ride along with the traffic, motorists can see you far enough ahead to steer out of your way. It is hard for motorists to avoid bicyclists who suddenly appear in front of them going the wrong way.

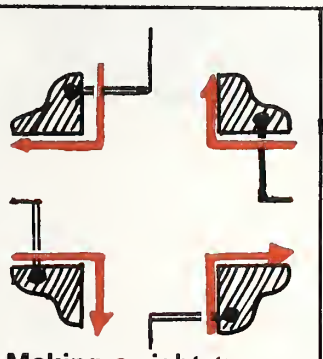
Turning at Intersections



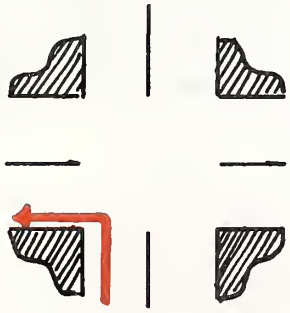
In heavy traffic, or if you are a new bicyclist, walk your bicycle through the crosswalks as a pedestrian.



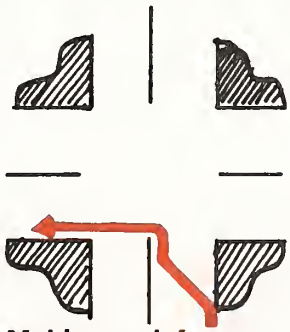
In light traffic, where your bicycle can be easily seen, or if you are skilled, make a normal vehicle turn from the center line or left-turn lane.



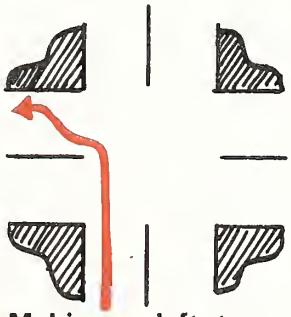
Making a right turn—from a two-way street to another two-way street.



Making a left turn—from a one-way street to a one way street.



Making a left turn—from a two-way street to a one-way street.



Making a left turn—from a one-way street to a two-way street.

Riding on the Right

When riding on a street, state law requires that you ride as closely as you can to the righthand side of the road, or on the highway shoulder. If a bicycle lane or path is provided next to the roadway, you are required by state law to ride there instead of on the street.

Making Turns

Signal at least 100 feet before you turn, using correct hand and arm signals. Before turning, check traffic in all directions. As you signal, be sure to make eye contact with the driver(s) nearby; don't turn until you are sure that they see you. As you make the turn, keep both hands on the handlebars.

Following Distance ("Two-Second Adjust")

Use the "Two-Second Adjust" to follow a safe distance behind another vehicle. When the vehicle in front of you passes a fixed object (tree, sign, house), begin counting, "One-thousand-one, one thousand-two." If you pass that object before you finish counting, then you are following too closely.

State law prohibits following too closely or hitching a ride by hanging onto the side of a vehicle. Air brakes will stop large trucks faster than you can stop your bicycle.

Parked and Double-Parked Cars

Plan your route so that you ride on streets where there is room for parked cars and bicycles. Ride at least three feet away from parked cars, and watch out for car doors opening ahead of you. To predict when a car door will open, watch the driver. You may be able to see a driver's head through the rear window or in the vehicle's side mirror. If it looks like the driver is going to get out of the car, slow down and make

yourself visible by sounding a horn or bell, or by yelling. If you must move to your left to avoid an accident, **don't swing out into traffic.**

Another way to tell when a car door will open is to watch for these signs: cars stopped with running motors, back-up lights on, brake lights and turn signals flashing.

Avoid city streets where parking is not allowed. Don't bicycle on streets during posted no-parking hours, since there is no room for a bicycle in heavy traffic.

Railroad Crossings

At railroad crossings slow down and stop a safe distance from the tracks if a train is coming. Wait for the train to pass, and don't move onto the tracks until they are clear—or you could dart out into the path of another train on a different track.

To cross railroad tracks, point your front wheel at a right angle to the tracks and cross each track, one at a time.

Building Sites

Stay away from barricades which hide a bicycle from view. The loud machinery may also prevent you from hearing oncoming traffic. Mud and building materials may make the road dangerous.

Unsafe Road and Weather Conditions

Dangerous Road Surfaces

When riding on sand, gravel, oil spots, bridges, paint markings and leaves, steer a straight line. Never brake or turn sharply. Even when leaves appear dry on top, they may be wet and slippery underneath.

Watch out for low branches over streets, low traffic signs, unmarked wheelchair ramps, brown posts (hard to see at night), and raised lane markers.

Potholes and Grates

Avoid potholes, curbs and steps whenever you can. Hitting a pothole or sharp road edge can damage wheel rims, spokes and forks, and it also could cause an accident.

Tires may fall through sewer and storm drainage covers and grates. A sudden drop of the front wheel will send you over the handlebars, so avoid covers and grates with slots running in the same direction as you are traveling.

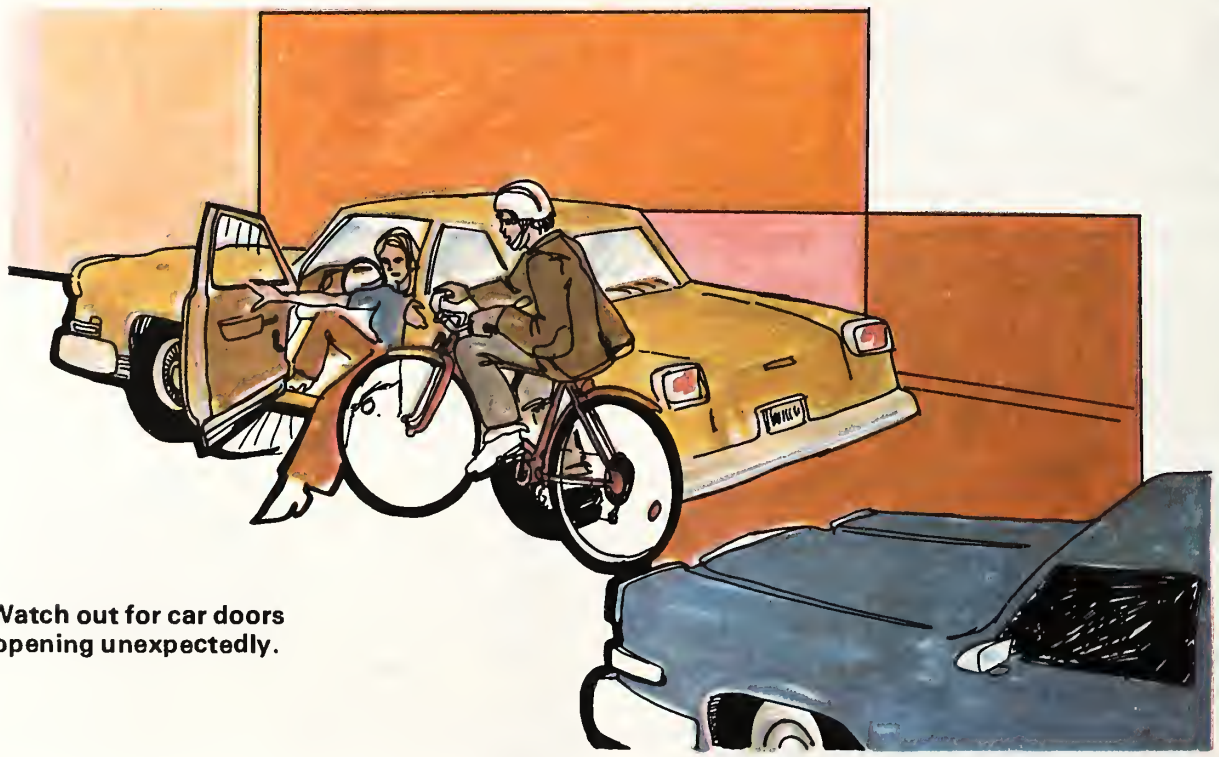
Wet Weather

Be careful when riding in wet weather. When brakes are wet, they require a longer distance to stop, because wheels slip on the wet road surface.

Night (Darkness)

If you must ride your bicycle at night be careful. Be sure to use the safety equipment required by state law for night riding (special headlamp and rear red reflector), adding reflective tape to your clothing and helmet. Use extra lights with stronger beams for better road visibility, and wear white or reflective clothing so you can more easily be seen.

Don't expect anyone to see you; ride defensively. Slow down to allow yourself extra time to react, and



Watch out for car doors opening unexpectedly.

Cross grating at an angle.

Avoid storm sewers completely.

ride only on familiar streets to avoid unusual hazards. Remember that bicyclists and motorists without proper lights and reflectors may be out there, too, so be alert!

Curves

Watch out for cars that cross the center line on narrow, curving highways. Never ride in the middle of the road on a curve, even to make a left turn. Instead, pull over to the right, and afterward go straight across the road to reach the other side. Always listen for sounds of approaching vehicles.

Around steeply banked curves and corners, keep the inside pedal as high as possible, to avoid dragging it on the road and being thrown off.

Hills

As you coast downhill your speed increases, making it harder to stop. The steeper the hill, the faster a bicycle coasts, and the greater your chance of skidding. Slow down and stay in control of your bicycle.

Pedestrian/Bicyclist Situations

Children Darting Out

Watch for children at play. Even if they see your bicycle, they may dart out in front of you anyway. Little children can't always tell how fast a vehicle is coming toward them.

Riding on Sidewalks

In some areas you may bicycle on sidewalks. If you do, be very careful to approach pedestrians slowly, or they may become scared and move suddenly into your path. When passing pedestrians or other bicyclists from behind, make yourself known by sounding a horn or bell, and by saying, "On your left/right." Then they will not turn and cross your path, because they will know where you are. Always pass pedestrians slowly.

Passengers (Riding Double)

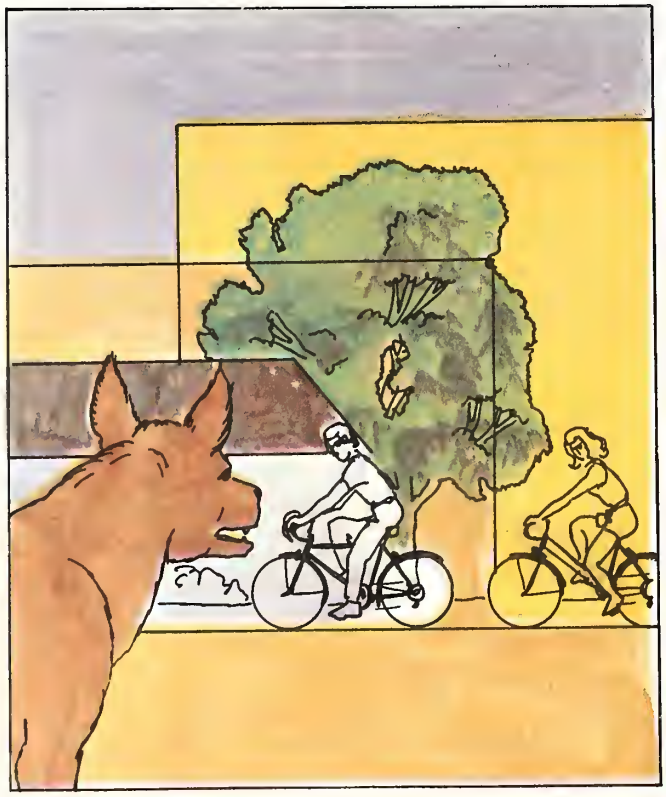
Most bicycles are built for one rider, and a bicycle should not be ridden by more riders than it is built to carry. On a one-person bicycle, a passenger's extra weight can make it difficult to stop, steer or see, bend wheel rims, and cause tire damage. Only a small child should be carried as a passenger, in a safe bicycle child carrier. Even a small child passenger can increase your risk of a bicycle accident.

Stunts

Don't try stunts on a bicycle. Stunt riding makes steering difficult. Many youngsters may think it is fun to do tricks, but fun and games quickly become dangerous. You may be thrown off balance into the path of a car, or fall and strike your head on a concrete curb. Other riders may steer clear of you because of your own poor judgment. **Don't show off.**

Group Bicycling

Montana state law requires bicyclists to ride in a single file, except on paths or on parts of roadways set aside only for bicycles. When riding side by side with another bicyclist and you wish to return to single file, agree before you start who will go first. Remember to use the "two-second" rule to prevent following too closely behind a rider ahead of you.



Animal Behavior

Even friendly dogs chase bicycles because they like to play "tag" with the turning wheels and pedals. Few dogs are hostile toward a rider, but being chased can be serious if your bicycle crashes while you are trying to avoid the dog.

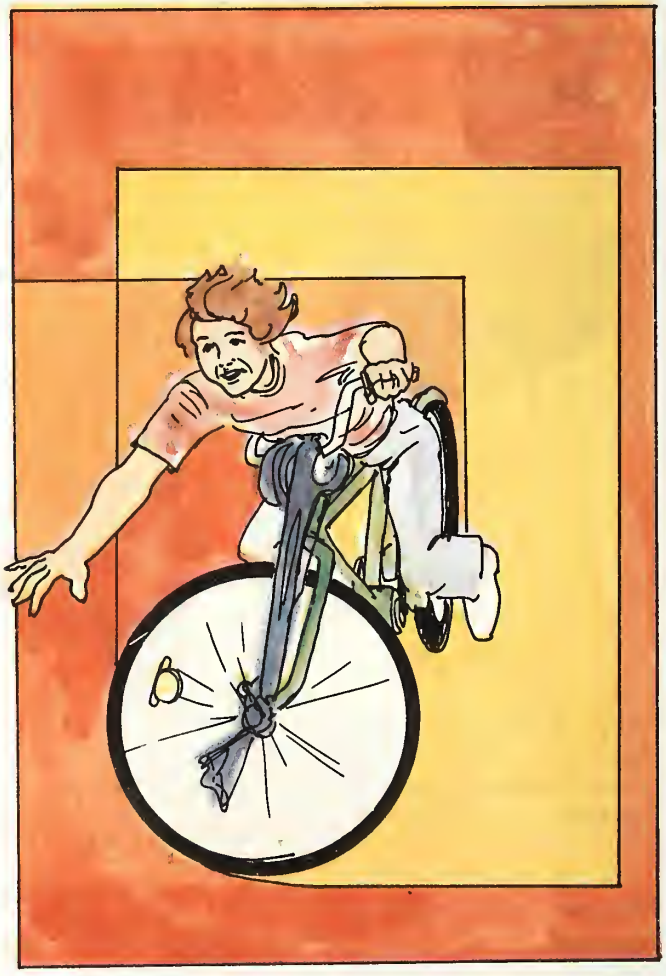
The key to safety is watching the dog's ears and tail; they will tell you what he has in mind. Using the dog's "body language" as your guide, you can decide what to do next.

(1) **Upright ears and tail held high** mean that the dog is just curious.

(2) **Upright ears and tail held low** mean that the dog is a chaser.

(3) **Flattened ears and tail held low** mean that the dog may attack.

Stay on your bicycle if at all possible. Don't kick or strike the dog. If need be, get off your bicycle on the side away from the dog, keeping your bicycle between you. Most dogs will go away, but do not try to remount your bicycle until you are sure it is safe. Always ride slowly if you know dogs are around.



Bicycle Front-Wheel Jamming

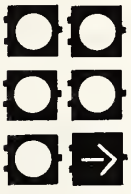
If the front wheel jams, it will throw you off the bicycle and cause an accident. To prevent this, make sure there is no loose or broken equipment above or around the front wheel, and that the wheel can turn without rubbing against anything. A handlebar bag should be kept tightly closed while riding, with nothing tied to the outside of the bag. **Never tie shopping or book bags to the handlebars, or drape clothing over them.**

9 Bicyclist Review

Matching

Find the correct term for each picture and put the letter in the answer blank next to the picture.

A. Regulatory Sign
B. Red, "Stop"
C. Left Turn Signal
D. Slow or Stop Signal
E. Green, "Go"
F. Right Turn Signal
G. Warning Sign
H. Stop Sign
I. Yellow, "Caution"
J. Route Marker Sign
K. Yield Sign



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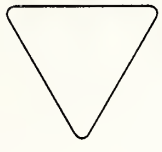

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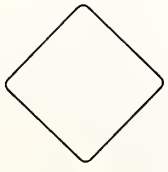

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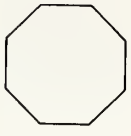


_____

_____

Yes-No

Read each question carefully. Write the correct answer "Yes" or "No" in the space opposite the statement.

_____ 1. Buying a bicycle that is a little bigger is all right because you will grow into it.

_____ 2. Bicycle equipment that rises more than five inches above the seat can prevent you from getting off a bicycle in an emergency.

_____ 3. Riding double, playing bike games and doing stunts is dangerous.

_____ 4. Wearing loose clothing can easily catch in pedals, chains or wheels.

_____ 5. Bicycles should be kept in good condition. A bicycle in poor condition is safe to ride if the rider is skilled.

_____ 6. When riding in traffic, a bicyclist should keep to the right.

_____ 7. A bicyclist should give proper hand signals before turning or stopping.

_____ 8. A bicyclist should use a bicycle path or lane instead of the street.

_____ 9. A bicyclist should not carry things in their hands when riding.

_____ 10. A bicyclist, if tired, may take both hands off the handlebars.

_____ 11. When riding your bicycle with a group of riders you should ride single file.

_____ 12. A bicyclist should wear light colored clothing or retro-reflective clothing at night.

_____ 13. A good way to lock your bicycle is to put a chain through the wheels, frame, and around a fixed object.

ANSWERS to Yes-No Questions:

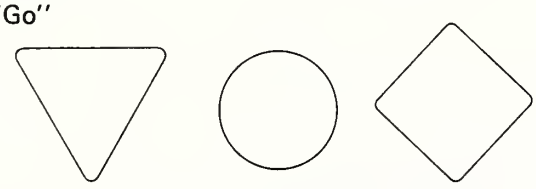
1.	page 9	8.	page 23
2.	page 14	9.	page 13
3.	page 26	10.	page 13
4.	page 14	11.	page 26
5.	page 14	12.	page 13
6.	page 23	13.	page 16
7.	page 22		

Multiple Choice

Read each statement carefully. Then choose the correct answer ("a", "b" or "c") and put it in the blank space next to the statement.

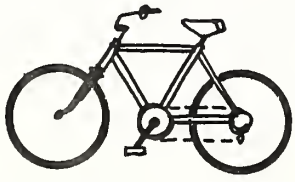
____ 1. When you turn a corner you should signal with
a. your hand
b. your foot
c. a yell

____ 2. The yellow color of these signs means
a. "Stop"
b. "Caution"
c. "Go"

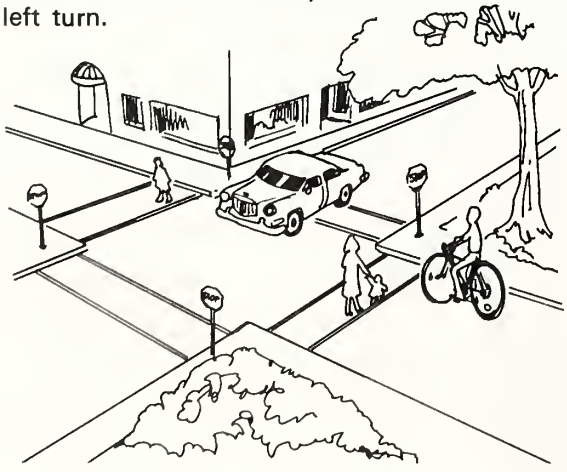


____ 3. To prevent front-wheel jamming, check your bicycle for
a. loose front brake pads or fender
b. loose front wheel or spoke reflectors
c. all of the above

____ 4. How many people can ride this bicycle safely?
a. not more than two
b. as many as you want
c. only one



____ 5. Draw a line to show how you would make a safe left turn.



Discussion Questions

What Do You Think? (The purpose of these questions is to get bicyclists to identify and discuss their attitudes about bicycling issues.)

1. Bicycle riders should have to pass a test like car drivers.
2. Showing off on a bicycle once in awhile is all right.
3. It should be okay if you are coasting downhill and exceed the speed limit.
4. Bicycle riders should be given traffic tickets when disobeying a law.

What Would You Do? (The purpose of these questions is to help bicyclists identify and select alternatives for dealing with problem situations.

Situation 1

Tom planned to go swimming with a friend and was to meet him at school by 1:00 p.m. Just as he was beginning to leave, his mother reminded him he hadn't watered the back lawn. Tom quickly set the sprinklers out and hurriedly left on his bike. As he pedaled off he knew Bob would be waiting. As he turned the corner away from his house he thought if he biked to school by way of the highway instead of the residential route he would cut 4 to 6 minutes off his travel time.

If you were Tom, what could you do? What would you do? Why?

Situation II

Judy had been late twice the past week getting home from school. Her mother told her that one more time late and she wouldn't be able to go to the show Saturday. After volleyball practice, Judy stayed a little too long talking with her friends about their upcoming first game of the season. She finally broke in to the conversation to say she had to get home. She had eight minutes to get home. Judy knew that if she pedaled fast all the way home, she could make it without being grounded. As Judy jumped on her bike, scenes flashed through her mind. The heavy automobile traffic and rough roadway, that dog that is always there to run out at bicyclists, and her deadline "not a minute past four-thirty"!

If you were in this situation, what could you do? What would you do?

Situation III

Suppose your friend asks you to ride to the grocery store to buy some bread and milk for his mother. You get permission to go and as you get on your bike to leave, it is obvious your rear hand brake doesn't work.

If you were in this situation, what could you do? What would you do?

Situation IV

You don't have a headlight on your bike. After going home from school you ride back eight blocks to the school basketball court to meet your friends for a game. It gets dark early in the winter and as your game breaks up, you realize the darkness rapidly coming as automobiles have turned on their lights. There is still enough light to see as you get on your bike and race across the playground. As you near the road, you have to decide what to do.

If you were in this situation, what could you do? What would you do?

PART IV. ADVANCED BICYCLING

10

The bicyclist will be able to:
- ☐ arrange a good commuting or touring route.
- ☐ collect necessary equipment for daily commuting.
- ☐ plan a bicycle tour.
- ☐ assemble equipment needed for long-distance touring.
- ☐ list the proper tools for a touring repair kit.

Traveling by Bicycle

Many bicyclists have discovered that their riding skills can be used for commuting daily to work, as well as for extensive weekend recreation. Traveling by bicycle opens up new choices of where to go, how to get there, and what to see and appreciate along the way.

Commuting

Since riding to and from work is usually done at peak traffic hours, a commuter must be concerned with safety. Precautions involve safe route selection, dependable equipment, emergency repair ability, and safe parking at your destination.

Choosing a Route

Select a route that you can ride comfortably with the gears provided on your bicycle. Consider traffic conditions, intersections, hills and bicycle paths before choosing your route.

Equipment

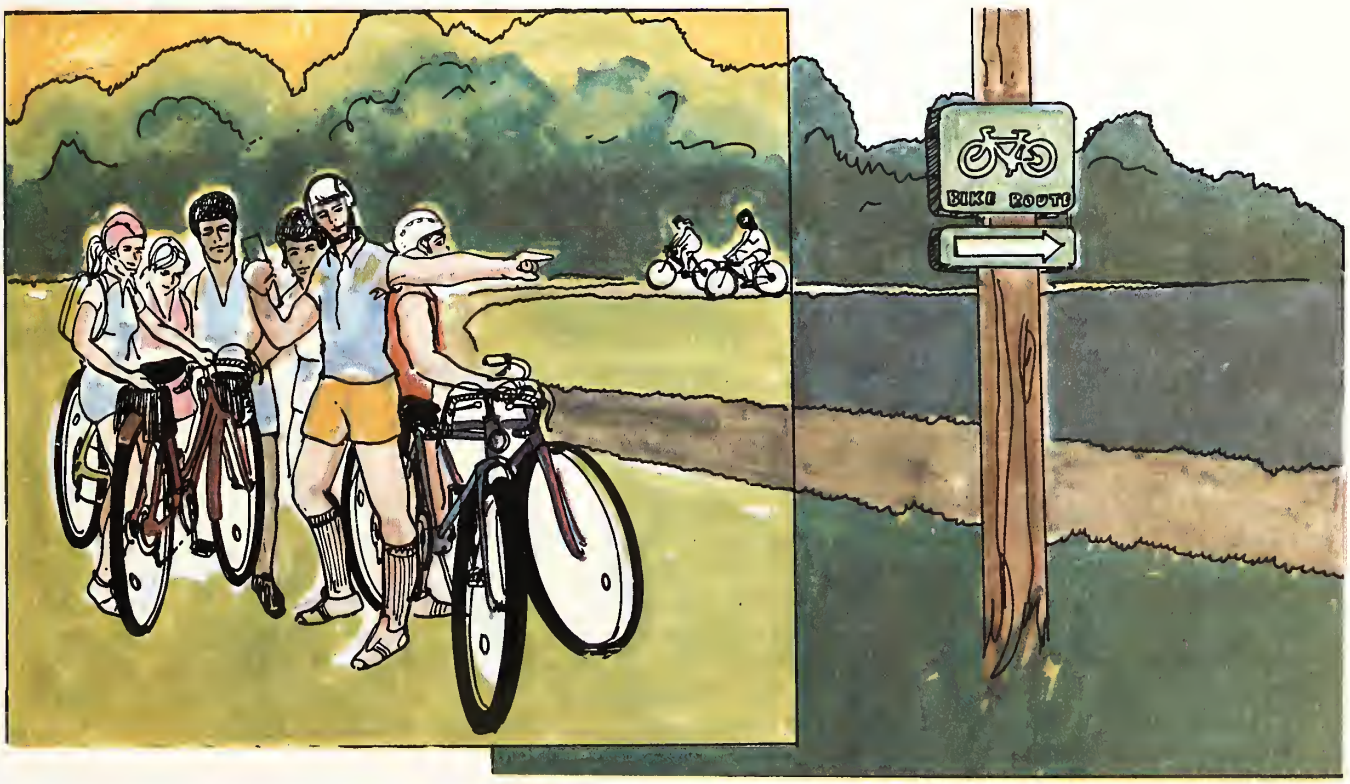
A commuter must be prepared for changes in weather and equipment breakdowns. To commute successfully you need reliable equipment: a bicycle you can depend on, tools or assistance available if needed, and clothes to change into if necessary. Watch the weather reports, use good tires, wear light or bright colored clothing, and encourage your employer to provide safe bicycle parking.

To protect your equipment, try to park your bicycle in a place sheltered from the weather, and keep your other supplies in a locker or safe place. Have your bicycle ready for night riding.

Riding Methods

Try to ride the same route each day, so that you become familiar with the traffic conditions and learn to adjust to them. An added benefit is that the same motorists will see you each day, so that they will also learn how to accommodate your bicycle in traffic.

If possible, try riding with a friend. This makes commuting more fun, and a buddy can be helpful in an emergency.



Touring

The same terrain that you merely glimpse from a car appears larger on a bicycle. The roadway seems to expand, so that even short distances can provide hours of bicycling pleasure. Bicyclists who want to tour may wish to join a local bicycle club.

Choosing a Route

When planning a route try to avoid long, steep hills or many short hills that could tire you on a bicycle. Look for places to eat, rest or stay overnight along the way. Also make sure that the road surfaces are good and that highway shoulders are adequate.

A bicyclist can usually cover eight to twelve miles in an hour of riding—less with hills and headwinds, more on flat, clear roadways. Plan trips that will increase your stamina gradually. Even experienced cyclists do not overextend themselves.

Equipment

To prepare for a bicycle tour you need maps, clothing, food, repair tools and spare parts, camping gear and other items for comfort and safety.

Maps

Before starting any trip, you should have maps for the area. In Montana State, trip maps are available from the Department of Highways.

Clothing

If you dress properly, body moisture can evaporate through your clothing. Moisture trapped next to your skin will make you cold. For warmth and ability to adjust to changing weather conditions, dress in layers.

The first layer of clothing should "breathe." For cool weather, use thermal underwear with a ventilating weave, or part-wool underwear. (Wool transfers moisture away from the skin surface, so you remain warm.)

The second layer should be durable and comfortable, but not loose enough to catch in the bicycle chain. In cool weather, wool provides warmth without bulk. Avoid tight clothing which cuts off blood circulation and makes you cold. Use pants straps to stop pants legs from catching in the chain.

The outer layer should be water-resistant and windproof. Lightweight nylon and polyester fibers are used for windbreakers and raingear. A rain cape with thumb loops and back vents for moisture evaporation can keep you quite dry, but avoid a cape with a long visor that might block your vision. Wear a helmet for head protection, along with a wide-brimmed rain hat to protect your face.

No matter what the weather, carry a spare change of clothes and a towel for the end of a long ride. Sweaty clothes may feel warm and comfortable as you pedal, but only dry clothes can keep you warm while you are resting.

Cycling gloves with padded leather palms, cloth mesh backs, and open fingertips may be worn for extra hand protection.

Shoes should be lightweight and low-cut, with firm soles. The material should breathe well. Some shoes have cleats which clamp onto a bicycle pedal for maximum pedaling efficiency. Avoid tight socks; they cut off circulation and may make your feet cold.

Food

When touring remember these three rules;
(1) Drink before you're thirsty.
(2) Eat before you're hungry.
(3) Rest before you're tired.

Don't eat a full meal until the ride is over for the day. Carry water in a plastic bottle or leather pouch.

Bicycle Touring Checklist

Repair Tools and Spare Parts

A checklist for bicycle touring may include the following equipment, depending upon the type of bicycle and your skill in making emergency repairs:

- ☐ bicycle pump
- ☐ rear brake cable
- ☐ chain tool
- ☐ extra chain links
- ☐ pliers
- ☐ Hex or Allen wrench
- ☐ 6-inch Crescent wrench (adjustable)
- ☐ tire irons
- ☐ free-wheel tool
- ☐ can of machine oil
- ☐ air-pressure gauge
- ☐ cleaning rags
- ☐ screw driver
- ☐ spoke wrench
- ☐ extra spokes
- ☐ extra toe-clip bolts
- ☐ extra brake pads
- ☐ extra fender bolts
- ☐ spare tire
- ☐ spare innertube
- ☐ innertube patch kit
- ☐ "sew-up" cement
- ☐ denim patches

Camping Gear

Make sure you have a well-designed mountain tent which can withstand high winds and heavy rains. Use stretch cords for holding extra equipment on your bicycle carrier; they are also handy for lashing down equipment in a storm. Include extra waterproof coverings, too.

Place heavy items as low as possible in waterproof pannier bags. Distribute the load between the front and rear bags. Too much weight over the front wheel will affect steering.

Other Items

Take a small first-aid kit, a flashlight and a detailed road map for long touring trips. Include eye protection, lip balm and sunburn lotion for all types of weather.

Avoiding Road Hazards

Extra caution is needed when bicycling over long distances. Fatigue can reduce awareness of possible dangers. Two common problems encountered in highway bicycling are crosswinds and glare. It is best to anticipate these hazards, rather than to wait until they appear.

Crosswinds

Strong crosswinds can push your bicycle right off the road. Some highways are posted with warning signs for crosswinds on high bridges, usually over narrow and windy valleys, or on curving roads which follow valley ridges. Large trucks can create powerful crosswinds, too. Get off your bicycle and wait by the side of the road if you see or hear a fast-moving truck-trailer approaching. Wait until the vehicle passes before proceeding, or walk your bicycle through a crosswinds zone.

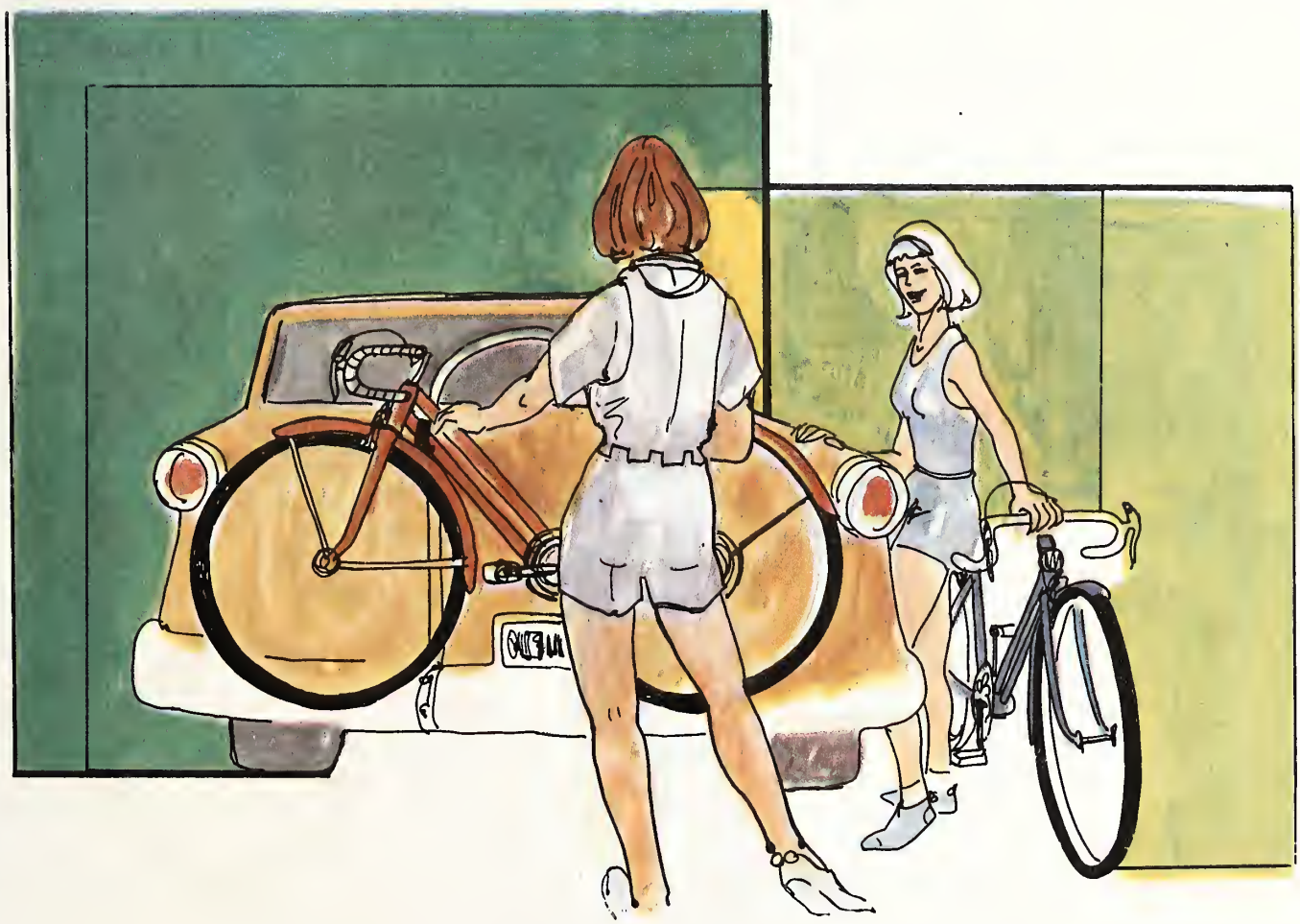
Glare

Glare from the sun's rays may block your view of other vehicles, and inhibit motorists' ability to see you. Especially during early morning and late afternoon hours, wear sunglasses and use extra caution.

Transporting a Bicycle

When starting a bicycle tour away from home, you need a car carrier to transport your bicycle for you.

A car carrier is usually mounted on a vehicle's roof, trunk lid or rear bumper. The carrier must not cover the vehicle's lights or license plates, or interfere with the driver's ability to see the road. Be sure the rack is well secured to the car and the bicycle clears the road.



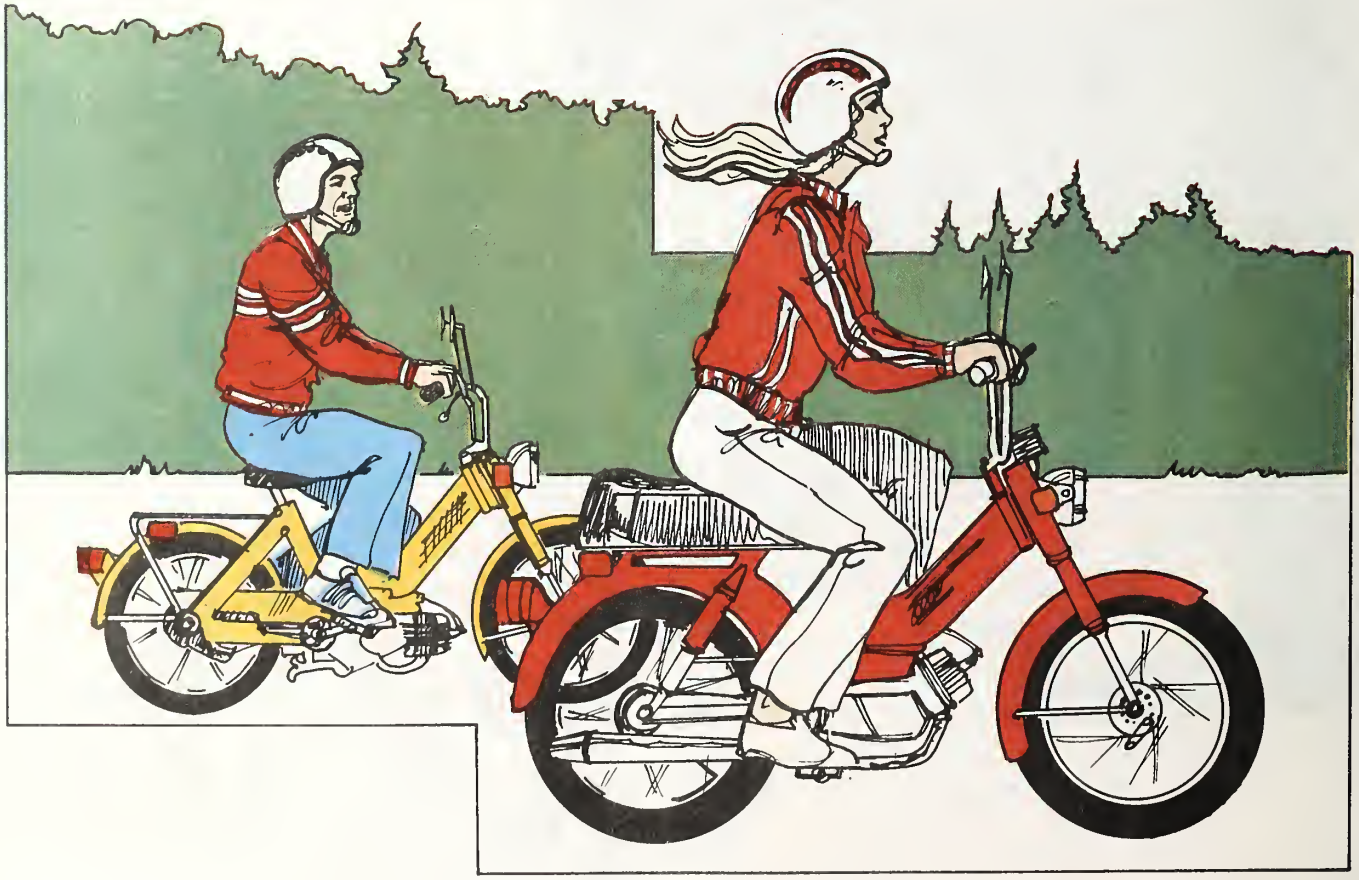
Mopeds in Montana

EFFECTIVE JULY 1, 1979

"AN ACT TO INCLUDE WITHIN THE DEFINITION OF 'BICYCLE' CERTAIN MOTORIZED BICYCLES: EXEMPTING BICYCLES FROM TAXATION AND AMENDING SECTIONS 15-6-201, 61-1-102, 61-1-103, 61-1-105, 61-1-106, 61-1-123, AND 61-8-605, MCA."

This bill defines "mopeds" as follows:

"Every device equipped with two or three wheels, foot pedals to permit muscular propulsion and an independent power source providing a maximum of two brake horsepower. If a combustion engine is used, the maximum piston or rotor displacement may not exceed 3.05 cubic inches [50 centimeters] regardless of the number of chambers in the power source. The power source must not be capable of propelling the device, unassisted at a speed exceeding 30 miles an hour [48.28 kilometers an hour] on a level surface. The device must be equipped with a power drive system that functions directly or automatically only and does not require clutching or shifting by the operator after the drive system is engaged." And as defined makes them bicycles, prohibiting taxation, and requires a driver license but not a motorcycle endorsement.



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